UTILISATION OF SKILLED ATTENDANCE FOR MATERNAL HEALTH CARE SERVICES IN NORTHERN MALAWI: RURAL HEALTH CENTRES PERSPECTIVES

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Research Protocol submitted as a part of the Master of Philosophy Degree in International Community Health

June 2010

DEDICATION

To my beloved husband Anthony , am so grateful for your patience during my absence and your support throughout the period of my study.

To my wonderful children; Wanangwa and Tiwonge Chirwa

In loving memory of my father, who was always my great inspiration, may your soul rest in peace Amen!

To my mother for your love and prayers

This thesis is dedicated to you all!

ACKNOWLEDGEMENT

I would like to thank the Norwegian State Educational Loan Fund, for funding my entire study period in Norway. Furthermore, NUFU, for funding my field work. Am so grateful.

Special thanks to my supervisors prof. Johanne Sundby and Dr. Maureen Chirwa for the tireless efforts in supervising the research process from proposal development and writing of this thesis.

Thanks to Mrs Belinda Gombachika, Penjani Kamudoni and Mudenda Simukungwe for your constructive inputs to the development of this thesis.

Am deeply grateful to the coordinators of this masters program, at the Department of General Practice and Community Medicine: Section for International Health and staff at the northern zone office Mzuzu and Nkhatabay and Rumphi district hospitals and furthermore to the members of staff from the study areas for facilitating this study.

Thanks to my colleagues and friends in Norway and Malawi

Finally , special thanks to my mother in- low for your input to my study and also moral support, Selina, for your encouragment and my sister Linie and siters in-low Sabina and Danless for taking care of my children during my abscence

EXECUTIVE SUMMARY

Background

Malawi is among the five sub-sahara Africa countries presenting with very high maternal mortality rates, 807 per 100,000 live. Inadequate access to and under-utilisation of quality Maternal Health Care (MHC) services was identified as a major reasons for poor health of the women in Malawi. As a response to this situation, the Malawi government initiated the implementation of skilled attendance approach to delivery of MHC services in 2006.

This study was conducted at two rural Health Centres (HC) in the northern part of Malawi, Bolero (BEmOC facility) and Kande (basic facility). It aimed at identifying the patterns and determinants of utilisation of skilled attendace for MHC services. It used methodological triangulation, quantitative study using a descriptive cross sectional survey and qualitative; semi-structured interviews and observations.

Results shows improved rates of MHC services utilisation compared to the 2004 national demographic health survey reports. Utilisation of skilled care for child birth was much higher than of the other components of MHC services. Utilisation of 4 antenatal care check-ups and living closer to the HC were significant predictors of utilisation of skilled care at birth. Though utilisation of skilled care by the women seemed to improve, most women did not make the recommended number of antenatal care and reported at the labour ward in progressed labour. Low utilisation of skilled care for most components of MHC services were common among women with; lower levels of education, younger and married. This study therefore identifies womens' autonomy as an important determinant for service utilisation.

Both health facilities had basic infrastructure, resources and good referral systems. However, imbalances were observed between demand and supply components of skilled attendance. Provision of quality care was a challenge mainly at Kande health centre; observed weak administration and management of the services. Users were also dissatisfied with the quality of care they recieved. Improved nurses'skills coupled with adequate supervision and mentorship are very important for provision of quality care. Since Bolero HC is a BEmOC facility, nurses from Bolero HC were likely to have more skills and to have frequent supervision and mentorship. This could explain why provision of skilled attendance to women was better at Bolero HC.

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LIST OF ABBREVIATIONS

HIV	=	Human Immune Deficiency Virus
AIDS	=	Acquired Immune Deficiency Syndrome
MCH	=	Maternal and child health
MHC	=	Maternal Health Care
VCT	=	Voluntary Counselling and testing
ART	=	Antiretrovirals Treatment
ANC	=	Antenatal care
RH	=	Reproductive Health Services
KAP	=	Knowledge Attitude and Practices
MOH	=	Ministry of Health
BEmOC	=	Basic Emergency Obstetric Care
CEmOC	=	Comprehensive Emergency Obstetric Care
MGD	=	Millennium Development Goals
WHO	=	World Health Organisation
UNICEF	=	United Nations Children's Fund

DEFINITIONS OF TERMS

MH = Refers to the health of a woman during pregnancy, child birth and post partum.

MHC = Refers to three major components of care for women that is given to ensure the health of the woman during pregnancy, child birth and postpartum, that is; Antenatal, Labour and Delivery and Postnatal

ANC = Refers to care during pregnancy aims at facilitating early diagnosis of complications. The woman starts care during first trimester and attends a minimum of four visits before delivery. The woman gets the following services; pregnancy monitoring for high risk factors, screening for HIV, syphilis/STD, anaemia, risk screening, vaccinations, malaria prophylactic and education.

Labour and delivery= Refers to care provided to women during delivery, ensures that the woman is assisted by a skilled practitioner during delivery

Postnatal care = Refers to care after delivery, the woman and baby are checked for signs of complications, done within 42 days after child birth

Skilled Attendant = Is a professional health worker with proficiency in midwifery skills

Skilled Attendance =Is a service delivery intervention that ensures womens' access to quality care, it ensures that there is availability of skilled attendant and enabling environment of equipment, drugs and transport for referral to emergency obstetric care.

Primipara = A woman who has given birth to one child or who is giving birth for the first time.

Grand multipara = Applies to a woman who has given birth 5 or more times

1. INTRODUCTION

Utilisation of skilled attendance by the women during child birth is regarded as an important pre-requisite for achieving the fifth millennium development goal (MDG 5) of reducing maternal mortality by 75% by 2015 (1). Malawi is one of the developing countries implementing skilled attendance approach since the year 2006. The Malawian approach to implementing skilled attendance initiative focuses on total utilisation of skilled care for maternal health care by the women, as such Traditional Birth Attendants (TBAs) were stopped from providing maternal health care services. There are reports from other interventions that implementation of skilled attendance is hampered by scarcity of skilled providers, poor quality of care among others (2-4) and also challenges with translating the concepts of skilled attendance to practice (5). Information from the Malawian experience with implementing skilled attendance strategy to the rural communities is also required.This thesis therefore, identifies the patterns and determinants of utilisation of skilled attendance for maternal health care services in the catchment areas of two rural health centres in the northern part of Malawi.

1.1 MALAWI

Malawi is a landlocked country in the southern Africa with a population of approximately 14 million people. The population density is estimated at 105 persons per square kilometre. It is bordered by Tanzania in the north, Mozambique in the east and Zambia in the west, see fig 2 (6). The country is divided into three regions, the Northern, the Central and the Southern regions which are in turn divided into 28 administrative districts (7).

Malawi is a poor country, the GDP/ capita is 667 US$. About 80% of the countries' total population lives in the rural areas. About 65.3% are living in poverty and a further 27% in extreme poverty. Malawi is number 165 out of 177 countries on human development index. The economy is primarily based on agriculture (7).

Malawis' major burden of disease is characterised by infectious or communicable diseases, like malaria, HIV/AIDS, tuberculosis, sexually transmitted infections, diarrhoea, and acute respiration infections. The country has low life expectancy, decreasing from 41.8 year in 1970s to 39.6 years in 2000-2005. The infant mortality rate is 76 per 1000 and under-five mortality rate is at 133 per

1000. Maternal mortality rate is 807 deaths per 100 000 live births (8). The HIV/AIDS prevalence is 12% at the age group 15-49 years and 34% of the population is undernourished (7)

1.1.1 MATERNAL HEALTH CARE SERVICES IN MALAWI

The Malawian government through its Ministry of Health (MoH) is the main provider of maternal health care (MHC) services in the rural communities in Malawi, followed by health facilities run by members of the Christian Health Association of Malawi (CHAM) and until recently; traditional birth attendants (TBAs). The MoH recently issued a policy stopping traditional birth attendants from providing maternal health services. All women are encouraged to use health facilities for MHC services.

Maternal health services are provided at all the three levels of the Malawi health care systems; this includes both government and private health facilities. The structure includes health centres/rural hospitals; district hospitals; and referral hospitals. The district health officers are responsible for the management of the district health services (district hospitals and health centres), while central hospitals work independently. Four administrative zones coordinate health care delivery in the country; the zone health supervisory office for the northern region is based in Mzuzu city. The study areas fall under two district hospitals of the northern health zone- Rumphi and Nkhata-Bay districts.

Health centres provide services to people within a radius of a maximum of 10 km; where there are no services within ten kilometres, outreach services are normally provided once per month. Each health centre's catchment area is defined by the villages it serves. Each village has a community based health worker who is responsible of documenting community based vital statistics that include number of births, deaths, children under five, pregnant women and those in reproductive ages etc.

Health centres are supposed to offer antenatal and postnatal care during week days and maternity services are provided 24 hours a day, seven days a week. Specific week days are open for new antenatal mothers while subsequent care is done on daily basis. All women keep a health record book where all basic information for two consecutive pregnancies is documented. The gold standard for optimal utilisation of MHC in Malawi is based onWorld health Organisation (WHO) guidelines: four targeted ANC visits according to gestation in weeks; at 12 weeks, 26

weeks, 32 weeks and 36-38; and assistance by skilled attendants during child birth. From 38 weeks gestation women who live more than 5km from health facilities are encouraged to wait for delivery at the waiting homes to ensure that they are delivered by skilled attendants (9;10).

1.1.2 IMPROVEMENT IN QUALITY OF MATERNAL HEALTH CARE IN MALAWI

The Malawian (MoH) is committed to improving quality of its maternal health services. In 2007 the ministry launched a plan of action called The Road Map to combat maternal and infant death (11). The Road Map demonstrates the government of Malawi's commitment to international agreements, particularly the Maputo Plan of Action of September 2006, where forty eight countries in Africa unanimously agreed to ensure maternal health and universal access to reproductive health. Malawi Road Map highlights strategies including access to contraception to avoid unwanted pregnancies and unsafe abortions and skilled attendance at births which includes functional referral systems, timely and quality emergency obstetric and infant care. The Road Map also promotes community empowerment and action to reduce maternal and infant deaths. It is believed that successful implementation of the Road Map will enable Malawi to attain MDGs 4 and 5, to reduce maternal by three-quarters and child deaths by two-thirds by 2015respectively.

1.2. BACKGROUND TO THE STUDY

MHC refer to care given to women during pregnancy, child birth and postpartum periods to ensure good health outcomes of the woman and baby (12); they comprise antenatal care (ANC), labour and delivery (maternity) care and postnatal care. The international guidelines for utilisation of maternal health care stipulate that; utilisation of antenatal care should be a minimum of 4 visits and the first visit should be done during first three months of pregnancy, maternity care should be provided by a skilled attendant and postnatal care should be done to both the woman and baby immediately after delivery and within two weeks after birth and, throughout 42 days after delivery (12;13).

Skilled birth attendance at birth is a term used to describe a process by which a woman is provided with adequate care during labour and immediate postnatal care (14). This intervention ensures womens' access to quality care as it ensures that there is availability of skilled attendant and enabling environment of equipment, drugs and transport for referral to emmergency obstetric care, while operating within a positive political, policy and socio economic environment (5).

Skilled attendance is new strategy complementing Safe Motherhood Initiative (SMI) that is highly advocated to ensure reduction in maternal mortality rates. The key concepts identified to be crucial for the success of implementation of skilled attendance initiative is the availability of skilled attendants, the enabling environment for the provider to deliver the required care and effective interventions that enables and encourages the women to utilise the services (5;15;16). All these perspectives on the interventions under skilled atendance approach are considered legitmate and necessary to the women (5) thus, the importance of ensuring the balance between its demand and supply characteristics.

Skilled attendance at birth is identified as an intervention that is effective for the reduction of maternal mortality (15;17-19). Optimal utilisation of skilled attendance at birth is one of the factors acknowledged for the current global decline of annual marternal deaths (20). Approximately, 343,000 maternal death occur in 2008 from 536,000 maternal death in 2005 (20;21). Similary, in Malawi it declined from 1662 deaths in 2000 to 1140 deaths in 2008. However, high maternal mortality rates has stil concentrated in sub-Sahara Africa (20).

Inadequate access to and under-utilisation of quality maternal health care services could be major reasons for poor health of the women in the developing countries (15;22-24). Thus, the risk of maternal death may be greately reduced if the women utilise skilled attendance for maternal health care services. in Malawi, utilisation of maternal health care is reported to be low (7;21;25). National projection on maternal health care utilisation shows that only 8% of the women started antenatal care during the first three month of pregnancy, about 57% to 60% were assisted by skilled attendant at birth and about 30 % utilised postnatal care. Quality of the services has also been reported to be poor (3;26-28), mainly in areas of inavailability of qualified staff, basic emergency obstetric services and poor client- staff relationships.

Malawi is implementing skilled attendance interventions through the a strategy called the national roadmap for accerating the reduction of maternal and neonatal mortality in Malawi (11;27;29;30). The key programs being implemented in the country comprise three main activities: strengthening national policies, programmes and guidelines in support of increasing skilled care for pregnancy child birth and postnatal care; introducing comprehensive emergency obstetric care (CEmOC) services at all district and central hospitals, and basic emergency obstetric care (BEmOC) in some health centres, also there is improvement in supervision,

monitoring and evaluation; mobilising and educating communities to plan for and use routine and emmergency maternal health care services (11).

A policy to guide the implementation of skilled attendants initiative is in place. It encourage all the women to be utilising health facilities for all components of maternal health care services, in particular it promotes use of skilled attendant at birth. Strategic mobilisation campaigns are being done by both community health workers and traditional leaders. Traditional birth attendants were also stopped from providing maternal health care services. Their new role is basically to counsel women and motivate them to utilize health care facilities for maternal health care services timely.

The traditional birth attendants were the key providers of maternal health care in the rural settings and this job was their source of income. It was observed that most maternal death that occured were associated with late presentation at the health facility. The use of TBAs was partly responsible for the delays (31;32). However, the implementation of this new policy may not be a guarantee for increase in utilization of maternal health care. There maybe other factors that motivated the women to utilise the traditional birth attendants more than the health facilities. Studies have reported that in spite of knowing the risks that are associated with each pregnancy, women still chose to be assisted by the TBA during child birth because they were available and friendly (31;33).

1.3 RATIONALE FOR CONDUCTING THE STUDY

This study was interested at looking at utilisation of skilled attendance for maternal health care servies; thus, including utilisation of antenatal care, postnatal care and family planning services. The added benefits for promoting utilisation of skilled attendance for child birth are indisputable. However, the role of the other components of materrnal health may be equally important for the reduction of maternal mortality and morbidity (12;13;34;35); Through utilisation of antenatal care and postnatal care women access preventive and curative interventions. Utilisation of antenatal care may also promote good health seeking behaviours among pregnant women , which may in-turn promote utilisation of skilled care at birth.

The implementation of skilled attendance approach, translating its concepts to practice is reported to be a challenge (5). Similary, some uncertainities were anticipated with the implementation of skilled attendance care at health centre level in Malawi. Thus, if the sipulated

requirements of quality for maternal health care services were available, and if those services were being utilised by the women during pregnancy, child birth and postnatal period. Information on the current status was required to expose the possible challenges if any. Therefore this study aimed at providing required reliable information on the actual situation at health centre levels, based on the experiences from the two health centres.

Before the present study other studies on maternal health utilisation have been published from Malawi and other developing countries (3;15;26-29;31;36-43). These studies have provided some data on maternal health care utilisation and on what works to realise reduction in maternal mortality rates. In general many of them have primarily focused on more specific topics. These topics include availability of quality emergency obstetric services, women perception of quality, role of the traditional birth attendants and levels of utilisation of maternal health care among others. The present study provides comprehensive data on patterns and determinants of utilisation of maternal health care services within skilled care initiative. Thus, the study presents information on both pattern of service utilisation and the state of quality of the available services.

This study is also one of the first studies done in the country to assess the current state of maternal health care utilisation from the catchment areas of rural health centres in Malawi, following the implementation of skilled attendace approach at rural community level. It is due to the sparsity of published articles that community based studies like this one are needed to enhance maternal and newborn health in low income countries.

This study therefore, aimed at establishing the situation of skilled attendance for maternal health care service delivery and utilisation at the two health centre following the implementation of skilled attendance approach. The focus was to examine current patterns and determinants of service utilisation, with reference to quality of the services. The research questions were; what are the current patterns of maternal health care service utilization?; what is the current state of quality of maternal health care services?

Specific objectives were:

- To identify patterns of maternal health care services utilisation among women in need of the services in the study areas.
- To identify factors that influence utilisation of each component of maternal health care

- To identify the state of quality of MHC services available at the two health centres

Having laid out the background into some of the specific issues important to this study in the introductory chapter, the following chapters are as follows; In chapter 2, some of the already existing literature concerning this topic will be discussed. Chapter 3 will give a presentation of study design, methodology and theoretical framework used to discuss results. In chapter 4 the results of the study will be presented and will be discussed in chapter 5. This will include a look at factors that emerged from this study that are unique in the literature and some additional implications of the findings. Chapter 6 will give conclusion and recommendations for further studies.

2. LITERATURE REVIEW

This chapter presents a review of literature related to the present study done in Malawi and else where. Initially, the state of maternal health will be discussed, followed by global and national issues on lessons from implementaion of skilled attendance approach; implementation challenges and successes. Finally factors that affect utilisation of health services in general will also be discussed.

3.1 MATERNAL HEALTH

Maternal mortality and morbidity for selected illnesses have often been used as indicators to quantify maternal health in low income countries. Levels of maternal mortality in industrialised countries are generally in the ranges of 10-15 deaths per 100,000 live births while in low income countries they are in the range of 200-1000 or more (3;12;13;21;44). The highest overall maternal mortality ratios occur in Africa, especially in the sub-Sahara region, this includes Malawi. The direct causes of maternal deaths are attributed to obstetric complication during labour and postnatal period; haemorrhage, sepsis, eclampsia, obstructed labour, and abortion complication (3;25;40;45). High maternal mortality rates are reported to be due to mainly the first two of the three possible delays in reaching care namely; delay in recognising complications, delay in reaching care and delay in receiving approriate care (24). TBA training aimed at empowering the TBAs to recognise when to refer the women for medical care (addressing the first two delays). This approach was based on an assumption that early recognition and referral of complications was possible for the TBAs. However, in reality most pregnancy related complications are difficult to recognise until the condition is severe (15). The onset of these complications are usually sudden and quickly progress to becoming life threatening. Thus, timely referrals may be difficult to achieve. It was due to these factors why use of TBAs as co-providers of maternal health care was challenged (31;46). The third delay, which is 'delay in receiving appropriate care' refers to circumstances at the health facility. Health facilities should be fully functional; should have the skilled attendants and the enabling environment for provision of normal and emergency care (15;16;24). The skilled attendants should also be able to provide triage and also have the skills to take appropriate actions.

3.2 SKILLED ATTENDANCE INITIATIVE

3.2.1 RELEVANCE OF SKILLED CARE FOR PREGNANCY, CHILD BIRTH AND POSTNATAL CARE

While skilled attendance at birth is identified as an intervention that is effective for the reduction of maternal mortality, utilisation of maternal health programs should not neglect the potential benefits of antenatal and postnatal care (5;24).

The main objectives of antental care are to deliver effective and appropriate screening, preventive and treatment interventions. Effective use of antenatal care contribute to better maternal health outcomes, safer birth; since those who attend antenatal care optimally are more likely to seek skilled care at birth; antenatal care is an opportunity for assisting the women to make birth and emmergency preparedness plan (12;13;15;44). Contribution of antenatal care to maternal mortality reduction has been challenged. High risk screening during antenatal care as a means of identifying women for facility based delivery is not effective since most of the antenatal care provided is of poor quality in many low income countries (3;15;19;23;47). Hence it is important to consider that each pregnancy may end up with obstetric complications.

Increase in average antenatal care utilisation of 1-2 visits is well documented (26;27;42;48-53). Discourse shows that most women commence care in the second trimester and that they attend less than four visits before the term of their pregnancies (53-56). It is argued that the frequency of antenatal care visits should not be standardised, it should instead depend on the time required to deliver the required antenatal care (23;44;47;57). This implies that the basic ANC care can be successfully given within the few visits that the women make.

Postnatal care comprise of immediate and follow up care (12;13;19;35). Immediate postnatal care is given to the woman and baby following the child birth to the following 24 hours or from child birth to the time the woman is discharged from maternity. The woman is expected to stay under supervision up to 24 hours after delivery. Follow-up postnatal care is provided to the woman and baby within one to two weeks after child birth. The woman is given an appointment date for follow-up postnatal care on dicharge from maternity care. Use of postnatal care is also very important for identification and prompt treatment of complications. During postpartum period, physical, social and mental problems can emerge. Thus, postnatal care includes both

preventive and curative services. Child care is also provided and includes immunisation, detection and treatment of any illnesses. During this time mothers also receive health education on child care, diet, breastfeeding, weaning and family planning. Postnatal care service utilisation is generally very low (35;53;56;58;59). Reports indicate that utilisation of postnatal care within two week after delivery was as follows; Nepal reported 30%, Nigeria 10%, Zambia 20-40%. It is also indicated that seven out of ten women (50%- 95%) who do not give birth in the facility do not receive postnatal care (41;58). Information is required on effective interventions for postnatal care in terms of the right packaging of intervention for routine postpartum care and sequence of delivery of postnatal care (35;59). The relevance of follow up postpartum care is also being challenged since the risk of death decreases steadily by 2 days postpartum (15;17;24;35). Thus, the use of a skilled attendant at birth should guarantee the provision of immediate postnatal care. However this is challenged since women are discharged from maternity wards just few hours after child birth.

Use of skilled attendance at birth has been over emphasised due to its effectiveness to reduce maternal mortality and morbidity. Most maternal mortality occurs during labour and delivery, or the first 24 hours of postpartum; most complications cannot be predicted or prevented (15;19;35;44). This picture makes the need for assistance by skilled provider during child birth even more emphatic. As part of global commitment to reduce maternal mortality rates by 75%, the following international standard were set for use of skilled attendance at birth; 80% by 2005, 85% by 2010 and 95% by 2015 (1;22;60). Studies have shown that low utilization of skilled attendance at birth in many low income countries is still a challenge. Utilisation of skilled care at birth is below and just above 50% (27;31;51-56). The overal utilisation of skilled attendance at birth in Africa by 2008 was 45.7% (16). This situation has compelled many low income countires to improve their strategies in maternal health service delivery to ensure attainment of universal utilisation for skilled attendannce at birth. Other than in Malawi, other countries implementing these interventions are Bukinafaso, Kenya and Tanzania (5) and also Bangadesh (61) among others.

3.2.2 EXPERIANCES WITH IMPLEMENTATION OF SKILLED ATTENDANCE INITIATIVE

Use of skilled attendance at birth was reported to reduce maternal mortality rate by a range of 13% to 33% (16). A review done in Bangladesh showed reduced mortality rates from 3.8 to 1.4

per 1000 birth (61). Increase in use of skilled attendance at birth was also reported to increase by 95% in Bukina Faso (2), from 39% to 53% in Bangladesh and was reported to double in most countries (18). Current evaluation on strategies under skilled attendance at birth in Malawi shows that the availability of comprehensive emergency obstetric care is quite substantial while there is need to upgrade more health centres to become basic emergecy obstetric care facilities (3). Improvement in maternal health outcomes have also been documented (27;29); reduction in maternal mortality from 250 (2005) to 182 per 10,000 birth in 2007, case fatality rates 1.5 in 2007 from 3.7 in 2005 and some increase in service utilisation were also observed.

Use of skilled attendance at birth is also considered as a cost saving intervention not only related to number of deaths averted but also reducing incidence of morbidity (16;24). This conversely leads ro reduction on the cost for global burden for disease. Effective identification and management of complications at health centre level requires low technology skilled care than the skilled care in referral facilities.

Implementation challenges have also been documented. The key challenges observed were, shortage of staff, poor staff attitudes, poor supervision and lack of consistency in emergency service provision at health centres upgraded to basic obstetric emergency health service (2;3;5;16;16;61;62). Many developing countries face alot of challenges to fully implement skilled attendance at birth due to acute shortages of staff. As observed through inadequate number of qualified staff, urban and rural disparities in staff deployment and high levels of absentism (3;5;16). The actual skilled attendants who are professional , doctors, nurses and midvives are usually not deployed at health centre level in many developing countries (2). As a solution to this problem some countries use middle level staff to provide skilled care as either home based or health centre based care providers, like the case for Bangldesh and Bukina (2;5;16;61) and retired qualified staff in Kenya (39;63). This cadre is also used in Malawi as the front line providers of maternal health care services. It is argued that dimensions of professional and non professional could also be differentiated further based on their competencies to manage normal deliveries and identify, manage and refer complications (5;16;24). This capacity coupled with availability of functional referral systems makes the low level staff reliable to provide skilled attendance (5;24).

Variations were observed on the preparation and skills for the low level staff. For Bukina, they undergo two year intensive midwifery training, Bangladesh only six months while in Malawi

they undergo three years intensive nursing and midwifery training. In Bangladesh, this staff is only responsible for home deliveries of women with normal labour and they have skills to effectively refer those presenting complications. For Malawi and Bukina, this cadre provide basic emergency obstetric care services. Use of middle level staff is not highly advocated since there are no uniform guidelines for preparing them (16). Poorly skilled staff may not be able to recognise and manage or refer complications timely. Thus, use country based certified skilled attendants may not lead to reduction in maternal mortality rates.

Lack of availability of enabling environment mainly resources have also been reported (5;26). It is well acknowledged that use of skilled attendants at birth alone may be not sufficient to reduce maternal mortality mainly where there is imbalance with enabling environment of resources and equipment (3;26;28;37;39;40;42;43;64-66). Health facilities require adequate skilled staff as well as emergency obstetric care resources in order to delivery good quality maternal services. It is highly recognised that reducing maternal mortarity rates cannot be addressed only at primary health care level. Rather, there is need for collective efforts to ensure functional systems at all levels of service delivery and coordination between levels (16;22;24). The focus should be on strengthening four main components namely; *clinical* competences to manage both nomal deliveries and those with complications and also staff interpersonal skills ; *service* this include upgrading infrastructure, equipment and supplies to ensure service; availability, effectiveness, affordability, appropriateness and accessibility; *health systems* that focuss on improving communication and referal systems and also promoting the demand for the services by the women. To effectively achive this strategy wider *development* issues are crucial, these include high level political commitment to improving the womens' lives, investing in social and economic development to address gender and wealth inequalities (5;15).

Low utilisation of the services is also reported. It is observed that many initiatives focus on promoting supply side of skilled attendance (reources) with less community mobilisation, presuming that the demand will increase as a consequence (5;15;16). Increase in service utilisation may be achieved if the services are very close to the people and also use of effective community mobilisation (5;15). Home deliveries by skilled attendants, are also identified as another approach of promoting use of skilled care. Successes with such interventions, were observed in Bukina Faso and Bangladesh (2;4;20;61).

3.3 HEALTH CARE SERVICE UTILISATION

Most studies identify social, economic and cultural factors from individual and household effects as predominant determinants for utilisation of health care services. Utilisation of care is reported to be closely associated with increasing trends in health services access and women's status. The determinants of optimal utilisation are low parity, previous bad obstetric history, perceptions of good quality of care, improved social economic status, good education, easy access (home visits, media, short distance, available transportation, free service, guardian shelter) and awareness and acceptance of the services (3;33;42;44;50;53). The effects of health services access and women's status variables varied in their influence on utilisation of components of maternal health care services. Provision of information and awareness through mass media and home visits was associated with increase of utilisation of prenatal care and not utilisation of skilled assistance during delivery and postnatal care (51;52). Attainment of basic education (50;52) was identified as an important factor for service utilisation; it was associated with greater decision making power, higher chances of comprehending health information. To the contrary some studies reported that education level did not influence levels of service utilisation (32). Women that were employed and resident from urban areas were less likely to utilise maternal health care services than those unemployed and from rural setting. This was associated with their increase in access to interventions like home visits that are available in the rural settings (52;53;55). Similar contrasts were presented in a review of determinants based on 30 studies carried out in 23 developing countries (32). This shows that barriers to utilisation of ANC, labour and postnatal are contextual.

Some studies recognise the importance of understanding the determinants of service utilisation beyond individual and household levels thus, community and state level factors (32;63;67). It is reported that determinants of an individual health extend beyond an individual and household risk factors. A number of inequalities in the use of maternal health care services are identified.Variations in risk are associated with social structure, levels of economic development (urban and rural residence), community ecologies and community health infrastructures (availability and quality of the health services) (32;63;67). Women living in urban residences have increased access to care, that is, they have access to both public and private providers; have access to different form of health information (media); the facilities are also accessible in terms

of transport and distances. Health services in urban area have better staffing and supply of resources than those in the rural area.

Both demographic and socioeconomic determinants are reported to be mediated by the cultural influences, thus health beliefs and practices (32;67). Belief systems and perspective of culture have led to health related behaviour that crash with the expectation of health care planners. Health beliefs and practices affected utilisation of care even when other barriers were eliminated (68-70). In Most developing coutries maternal health care services are free. However this has not translated to increase in service utilisation. The women in these studies do not utilise these free services beacuse they percieved the care as; of poor quality than that offered by traditional birth attendants (69), the services as not culturally sensitive (68;71).

Cultural, socioeconomic and demographic factors are also reported to influence the three possible phases of delays associated with utilisation of maternal health care; decision to seek care, reaching the facility and receiving adequate care (69). Individual behaviour related to health seeking is influenced by the community views of a specific behaviour. Child birth is culturally considered as womens' battle, thus the women are expected not to be overwhelmed by pain during labour and those giving birth unassisted are admired (67). Active labour is culturally defined by breaking of waters, or presentation of the presenting part on the vulva Thus, it is likely that women would alert people that they are in labour when it has far progressed. Delays to seek care are also influenced by decision making process. In many cultures, the decision to seek health care is made by either the head of the household or the husband (67). In situation where these are not available the woman may need to wait. In the process, her labour may progress hence this may lead to late presentation at hospital. It may be very difficult for the woman who is already in advanced labour to timely reach the health facility. Reaching the facility in time also depends on availability of resources, (money, ambulance, public transport) to aid in taking the woman to the health facility. Obstetric complications are not usually predictable, and also can happen when the family does not have money. Thus it is recommended that women who live more than ten kilometres from the health facility have to wait for deliveries in the waiting homes. Use of waiting homes is also challenged since the family cannot be sustained without the woman, as the role of child care and cooking are usually performed by the woman (72).

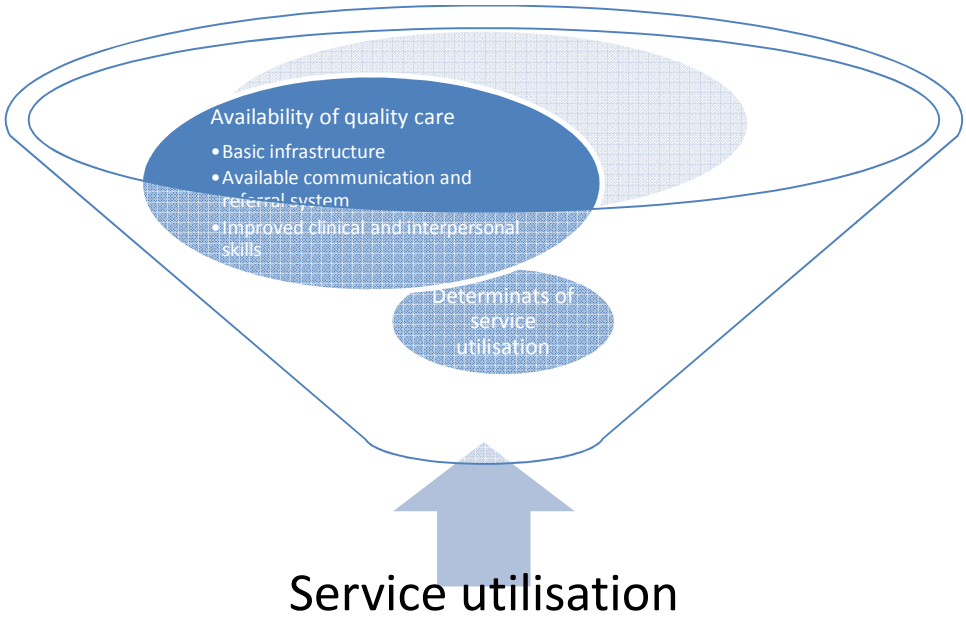
Womens' perception of care also influences their tendency to utilise maternal health care. Studies have reported that women pay attention to quality of health care services and their rating on satisfaction with care is determined by a variety of factors, among them; personal preference, values and expectations (42;55;73;74) They tend to be dissatisfied with, long waiting time, poor facilities, lack of confidentiality and poor provider versus client interaction. The women know what care is expected through past experience, knowledge from health talks and from peers; they will always seek alternative better care if available (31;33;55). The health care services should provide quality care with compassion, dignity, confidentiality and promote women participation in decision making if the women are to be motivated to utilise these services (27;42;73).

3.4 CONCEPTUAL FRAMEWORK

The conceptual framework of skilled attendance approach illustrate how skilled attendance is effective for prevention of maternal mortality and morbidity. The one developed by Graham et al (5) focusses on the importance of creating an enabling environment and adressing health systems supply and demand –side barriers. The one developed by Family Health International (FHI) (2) focuses on the role of service accessibility and functioning of health centres and utilisation of the services. This sudy has adapted its conceptual framework from these two thoughts, see fig 1. The preliquisites of skilled attendance are considered to be its supply and demand factors. The supply factors are the availability of skilled attendants and their ability to provide the required care, availability of enabling environment of resources and referral systems and service accessibility. The demand side being community awareness of the services and their ability to utilise the services optimally. Thus, utilisation of skilled attendance for maternal health care at health centre level was viewed as the extent to which the women utilised quality maternal health care services and what factors are important for optimal and suboptimal services utilisation.

This framework therefore identifies issues concerning operationalisation of skilled attendance approach at the health centre level. It identifies three staged focus to understanding service utilisation; Stage one looks at to what extent did the health system at health centre level had made quality maternal health services available and accessible to the women. Stage two was to identify the determinants of service utilisation. And stage three looks at to what extent do women optimally utilise the quality services.

Fig1. Conceptual framework for the utilisation of Skilled Attendance for maternal health care services



3. METHODOLOGY

This chapter presents the study materials and methods. First the study materials are presented followed by the study methods.

3.1 MATERIALS OF THE STUDY

3.1.1 STUDY SETTING

The study was conducted in the northern Malawi, in the catchment areas of two rural health centres: Bolero and Kande within Rumphi and Nkhata-Bay Districts respectively as shown in fig 2 (6). The two health centres operate theoretically within a primary health care approach, which rests on three fundamental pillars namely; equity for all, community involvement and intersectoral coordination. Kande health centre is just a basic health centre while Bolero health centre is upgraded to a basic emergency obstetric care (BemoC) service delivery level. These health centres are also frontline providers in delivering all public health interventions. As such, other than only implementing maternal health care services, the nurses are also responsible for coordinating other curative and preventive interventions, covering outpatient department when the clinical officer is not available and managing ARV clinic, and dispensing medicines at the pharmacy.

Bolero health centre is located 20 km from Rumphi district hospital. The health centre has a catchment area population of about 30807 people and the population of women within child bearing age is about 7200 people. The health centre covers 123 villages under traditional authority Chikulamayembe.While Kande health centre is located 50 km from Nkhata-bay district hospital and 15 km from Chintheche rural hospital. The health centre has a catchment area population of about 15000 people and the population of women within child bearing age is about 5400. The health centre covers 30 villages under traditional authorities Fukamapiri and Malenga-Mzoma .

Catchment areas of these health centres comprise people of different cultural backgrounds. Bolero is predominantly Tumbuka while Kande is Tonga. Further, the two areas have varying sources of livelihood; Bolero is a farming community with significant amount of growing commercial tobacco taking place. Kande is on the lakeshore with subsistent farming and fishing as the main sources of livelihoods.

Fig 2. Map of Malawi Showing the study sites: Kande and Bolero Health Centres.

3.1.2 POPULATION

Study Population:

The population consisted of women aged between 15 and 46 years who had used maternal health care services during the last twelve months from the time of the interviews. Key informants were village heads, elderly women and men, professionals; teachers, health workers and extension workers.

Selection of research subjects:

Multi-staged sampling method was used. First the villages were entered in a cluster based on distance from the health centre estimated by time the women take to reach the health centre ; 15 minutes, 30 minutes, 1hour and 2hours ; selected 3 villages from each cluster; selected the specific households with women that fit the selection criteria.

Inclusion criteria

1. Residents of the catchments areas for not less than two years, prior to the start of the study
2. Women with at least one complete pregnancy within last calendar year, who may or not have a living child.

Exclusion criteria

1. Women who are not in position to comprehend; very sick, mental illness

Selection of key informants.

The key informants were chosen, two persons from each village. The criteria used was that the person should have a reputation of some leadership, who is also more conversant with maternal health issues in the community . The selection for the key informants was done purposefully (75), with guidance of the village resource persons. The order in which the person were contacted was primarily based on accessibility. A total of 20 key informants were interviewed, 10 from each study site, comprised village heads, teachers, HSAs, and ordinally reputable men and women.

3.1.3 SAMPLING

The sample was determined by the proportion of women who utilise all components of MHC services; ANC, Labour and delivery and postnatal care. According to the Demographic health survey report, rural women utilisation of MHC services is as follows; ANC 55.7% (5 visits), Maternity53%, and postnatal 38% (76;77). From these proportions we made an assumption that about 60% of the women utilise all components of MCH services, with a confidence interval of 55% to 65% and the standard error was 2.5%. A sample of 384 respondents was used, with 192 subjects from each of the two health centre being used. The calculation was made using the formula for single proportions (78) based on 95% confidence level. Details on sample size calculation;

$$N = \frac{p\,(100 - p)}{(e)\ \text{Squared}}$$

$$N = \frac{60\,(100 - 60)}{(2.5)\ \text{squared}}$$

$$= 384$$

Note

N = sample size

p = proportions: estimated proportion of 60% utilisation rate.

e = standard error

3.1.4 STUDY PROCEDURE

The field work was conducted in four months, from August to November 2009. Formalities like, seeking national ethical clearance familialisation with the study area and other preparation were done within the first two months. The actual data collection was done over two months, one month at each study area. Household and key informants interviews were done over three weeks and one week was spent on health facility observations.

Following the approval of the study by the Malawi ethical clearance committee, the zone and the district health offices were notified. The district health officers introduced the researcher to the respective health centres. The village health workers helped with identification of the villages

that met the criteria. In coordination with the health centres, traditional leaders were notified. All village leaders accepted the interview process. Informed consent was sought from the study participants, verbally. For the study participants who were below 18 years, where possible consent was sought from spouse or parents, if not possible cultural definition of an adult was used; in my culture anyone who give birth is considered as an adult. The participants were informed about the purpose and scope of the study, type of questions to be asked, the benefits and risks and how the results will be used.

Confidentiality was observed throughout the process of data collection process; the participants were identified by interview number, an explanation was given that the information will kept confidential. The research assistants signed a statement of ensuring confidentiality. Data collected was not made accessible to anyone not linked to the study.

All interviews were done at the respondent's home. The women were asked to produce both health passports for self and the youngest child. Verbal reports were confirmed with the documentations on maternal health care utilisation in the health passport. The women who were sick or their child were referred to the health centre for care after the interviews.

Key informants interviews were done simultaneously, the village guide was used to identify the key informants who fitted the criteria. The interviews were likewise done at their home.

One assistant interviewer participated during data collection at each health centre. Training on the research processes was given followed by field test. Daily reviews were made on the questionaires for completeness.

3.2 METHOD OF THE STUDY

3.2.1 STUDY DESIGN

This study used methodological triangulation methods. We did a quantitative study using a descriptive cross sectional survey to identify patterns and determinants of utilisation of maternal health care services. We added a qualitative method; semistructured interviews and observation component in order to provide comprehensiveness and complimentarily in data quality. Descriptive cross-sectional survey was chosen for this study because the design focuses on

understanding and describing the associations between variable in-depth, quantifying the known variables as they influence health seeking behaviour and their variations on each level of care (79;79;80).

The quantitative part; a cross sectional household survey was done in selected households in the communities within the catchments areas of the two health centres . A structured questionnaire was used to collect data on patterns and determinants of utilisation of MHC services and womens perception of care. The qualitative methods; key informants interviews were used to explore the community perception of maternal health care service utilisation by the women and their perception of the determinants for utilisation of care and quality of care. Observations were done at the health centre to establish quality of care and trends in service utilisation. Triangulation helped in providing completeness of data collected.

3.2.2 DATA COLLECTION AND TOOLS

Data on socioeconomic characteristics, patterns of service utilization and womens perception of care was collected using a structured questionnaire see appendix i. The questionnaire had pre-coded responses. It was prepared in english, translated into Tumbuka and Tonga (the local language of communication) and back to english to verify if translation done reflected to the original meaning in english. Questions used in the questionnaire were adopted from tools used by related studies (76) and also available tools for measuring client satisfaction with care (81-84).

Interview guide was used to collecting information from the key informants. In-depth interviews were used to collect the information (see appendix ii).

Observation check list (see appendix iii) was used to assess quality of care through participant observation method (79). The observation guidelines were guided by basic quality indicators on structure and process (85).

The data collection tools were tested for validity and reliability. Pretesting was before the actual data collection commenced, it was done on clients similar characteristics on inclusion criteria as those that participated in the main study from the catchment area of Mzuzu health centre. The information was analysed to check on the appropriateness of the data collection tools in collecting the data that was required. This process helped in the identification of gaps and

overlaps in the tool. Following pre-test the study tools were rectified before the actual data collection commenced. To ensure reliability of the data collected, responses on utilization of maternal health care were obtained both through verbal report and documentation in the health passport. In circumstances where there was poor documentation for the particular service, only verbal responses were used.

3.2.3 VARIABLES, DEFINITIONS AND MEASUREMENTS

To answer the objectives of the study the following variables were chosen: **utilisation of maternal health care, socio-economic characteristics, quality of care**. The dependent variable were patterns of utilisation of maternal health care services and quality of care, while socioeconomic characteristics of the respondents were independent variables.

3.2.3.1 PATTERNS OF MATERNAL HEALTH CARE UTILISATION

Patterns of utilisation of the four components of maternal health care services , which are ; antenatal, maternity postnatal and family planning. Three methods were used to collect this data;

1. Individual women responses to the questionnaire on how they utilised the components of care,
2. Key informants interviews on their observation on the current pattern of maternal service utilisation in their community.
3. Health centre observation; interviews with health centre staff and review and analysis of health centre documents.

1. Women responses.

The following variable were used to measure the patterns of utilisation of maternal health care services; how women utilised antenatal, maternity, postnatal and family planning services. WHO standards were used to determine optimal utilisation of maternal health care (12;13). Details on the variable are as follows;

Antenatal care; Three variables were used to determine use of antental care:

- Number of antenatal visits made; categorised from one, two three and four;
- Timing of the first antental visit, whether during the first, second or third trimester;
- Care the woman recieved during the visits: routine assessments were recored to be adequately done if the following assessments were done on each visit; weight, height,

levels of blood pressure, anaemia test, urine test, syphilis test, and check on the presentation, fundal height and foetal heart beat. (for risk factor, baby wellness); other antenatal care services were if the women recieved: prophylaxis for anaemia and malaria; two doses of tetanus toxoid vaccine or the woman status with the vaccine (completed or not); if was given health education on the danger signs during pregnancy that require immediate attention (eclampsia, bleeding,).

Maternity care; Four variables were used to determine use of maternity care:

- Place of delivery (home, on the way, health centre and hospital);
- Assistance during delivery (self/relative, TBA, Nurse or clinician)
- Use of immediate postnatal care for home deliveries (days after delivery),
- Outcome of labour (if experienced complication and if it was live birth or not) and care during labour and immediate postnatal care.
- Care given; assessments done during discharge from labour ward and from maternity ward to home. These assessments were considered good if the woman had blood pressure test, vaginal bleeding checked and uterine involution checked.

Postnatal care; Three variables were used to determine use of postnatal care:

- If she attended at postnatal clinic within two weeks;
- If she was reminded to come for postnatal care during discharge from maternity;
- What type of postnatal care she and the child received. Postnatal care for the woman is considered good if her vital signs were checked, was palpated for uterine involution and also if locia was checked. For the child if weight temperature and umbilical area was checked and also if the mother was asked about her breast feeding status.

Family planning;Three variables were used to determine use of family planning care:

- Knowledge of the methods;
- previous usage and
- current usage.

2. **Key informants responses on patterns of maternal health care utilisation in their community.**

   - Whether they are aware of the policy on promotion of use of skilled attendannce.
   - If they had observed any changes in the utilisation of maternal health care during the year (each component of maternal health care)
   - What are the common obstetric complications in the community the past years and if any happened during the year.
   - If the community has self help means of taking women to facility when in labour.

3. **Health centre observations.**

   - Nurses reports on current utilisation of maternal health care compared with the previous years.
   - Document analysis; review of registers for antenatal, maternity, delivery and family planning, for 2009 and 2005.

3.2.3.2 DETERMINATS OF UTILISATION OF CARE

Socio-economic/cultural characteristics determined by individual and household characteristics were used as explanatory variables for the current pattern of maternal health care services use. The choice for the variables were made based on their theoretical and empirical importance as documented in international literature on determinants for utilisation of maternal health care. Key informants were also asked to state some determinats.

1. **The following variable were used under individual characteristics in this study;**
   - **Age:** Was current age of the woman at the time of interviews and also women's age at her first birth. It was measured in years, recorded as continous variable and then categorised according to the WHO guidelines on age categories; below 18 years, 18 to 35 years and above 35 years.

- **Parity:** Was total number of births by the woman. It was measured according to WHO guidelines; categorised into primipara (first birth), multipara (2-4 births) and grand multiparous (5 and above).
- **Income (women):** Was determined by reports of any activity that help her access income (yes or no). The actual source of income was also recorded.
- **Marital status:** Was categorised as married, single, widow and divorced.
- **Level of education:** Were determined by two indicators; self-reported ability to read and write and the attainment of education based on the Malawi education system. Most of the respondent who reported to have attended primary school below the grade 4 were not able to read and write hence were classified as, did not attend. These were;
    - Did not attend school to a literate level
    - Attainment of primary education
    - Higher (secondary school and a course).

2. **The following variables were used under household characteristics;**

- **Family composition:** Number of household members and how they related to the women were used to establish the family composition categorised as s nuclaer and extended. For the extended family it was further categorised to identify the role of parents for the women who lived with them.
- **Home health situation** for the woman was determined by housing condition, presence of sanitation facilities and source of drinking water.
- **Housing conditions** was classified based on the materials used to construct it:
    - Temporary if the house is made of mud or not burnt bricks or straws and thatched with grass;
    - Semi-permanent, if the house is made of burnt bricks, thatched with grass and reasonably strong;
    - Permanent , if the house is made of burnt bricks, cement floor and roofed with iron sheet and looks strong for the village standards.
- **Sanitation facilities** was classified as;
    - Good for the household that have a whole set (latrine, bathroom, kitchen and dish rack).

- Poor for those who had some facilities except toilet and bathroom or none of the facilities.

- **Source of water** was categorised as safe and not safe. Water was considered safe if it was from protected wells and boreholes.
- **Economic status** was determined by a construct that included: availability of property (86) (radio, television set, bicycle, car); source of income and condition of housing. Was represented by wealth rank, was classified as:
    - Lower; if they do not posses any property had no regular source of income and the housing condition was also poor.
    - Middle was used for households that possessed a bicycle or radio, have a regular source of income and house in good condition.
    - Upper was used to household that possessed television set or car, had a regular source of income and housing in good condition.
- **Distance to the health facility** was used as a proxy for access to care. It was determined by the time women took to reach the facility, one way by foot. Distance was categorised as;
    - within 15 minutes,
    - 30 minutes,
    - 1hour, and above 1 hour.

NB: 30 minutes walk is equivalent to 5km while 1 hour walk is equivalent to 10 km.

3. Key informants responses on determinants of maternal health care utilisation in their community.

- What factor promote utilisation or lack of utilisation of maternal health care services.

3.2.3.3 QUALITY OF CARE

Measuring quality of maternal health care focussed on the components of care under structure, process and outcomes. National standards for measuring women friendly care in malawi (84) were used to identify areas that could be easily measured under structure process and outcome. Three methos of data collection were used;

1. Women perception of the care they got during their last pregnancy,
2. Health centre observations and
3. Community perception based on the key informants perceptions of care.

1. Women perception of care

Women perception were used to identify quality of care under process and outcome.A set of questions on nursing care practices and health centre characteristics adapted from a tool on Primary Care Satisfaction survey for women (PCSSW) (82) were used to collect this data. Four variable were used:

- Communication with nurses; the women perception of the reception they got, tendency to be respected and tendency for the nurses to listen to their needs.
- Nurses responsiveness; their accessibility when the women needed them and their general responsiveness to emergencies.
- The women personal impression on the care they got; regarding how free they were to discuss their needs, if they were happy and could recommend the facility to other women in need of maternal health care services.
- General; cleanliness of the environment and
- Their overall rating based on their experience with care, the scale was from 0 to 10, 0 being the lowest and 10 the highest.

2. Key informants perception of care.

Key informant interviews were used to identify quality of care under outcome. Key informants were asked to share their general perception of quality of maternal health care at their health facility.Their perception of care was regarded as a proxy for the general community perception of care.

3. Observation at the facilities on service delivery;

Health facility observations focussed on identifying structural and process components of quality. Areas assessed were ;

Service delivery

- Time; start time for consultations, waiting time, actual consultation time

- Derivery systems; what system of service delivery was used (comprehensive[1] or not)
- Process of service provision; provision of health education, assessments, provision of treatment, privacy and flow of clients

Resources and equipment;

- Human resource
- Whether the equipment were in good working condition.
- Availability of all required medicine and resources.

[1]Women in need of all MHC services are attended by the same nurse and consultation room based on first come first serve.

3.2.3.4 SUMMARY OF STUDIED VARIABLES

Table 1. Shows the summary of variables studied.

Table 1. Variables analysed

Variable	Definitions	Types
Utilisation of care	Antenatal care; Number of visits, timing of the first visit, documentation in the health passport. Care during antenatal period; assessments and provision of prophylaxis, treatment, and vaccinations.	Categorical/ numerical Categorical
	Assistance during delivery; Skilled attendant, TBA, and relative. Place of delivery: home, facility, TBA Care provided: routine assessments	Categorical
	Postnatal care utilisation: immediate for home deliveries, one to weeks after delivery Care provided: routine assessments	Numerical/categorical
	Knowledge and use of Family planning	
Demographic	Personal social data; age, occupation, education	Both numerical and categorical
	Household; average family income; household size, home health status, type of housing, water source Distance to the facility; time ranges	Categorical/ numerical
Quality of care	Response to specific questions on their experience with the services during their last complete pregnancy Observation of clinic procedures	Categorical

3.2.4 DATA MANAGEMENT AND ANALYSIS

For the quantitative part of the study, data was entered using Software Package for Social Sciences (SPSS) version 16 by the researcher. A data base was developed based from the data fields and codes in the questionnaire. Data analysis was done using SPSS. The researcher did the analysis task with support from the IT specialist.

Standard descriptive were used to describe the patterns of utilisation of maternal care of the sample population in relation to the respondents socio-demographic characteristics. Bivariate analysis were also done. Since all the response variables were categorical, Chi square test and logistic regression models were applied. Chi square test was used to determine factors significant for optimal and suboptimal utilisation of maternal health care. The level of significance of the findings was p value of 0.05. Multiple logistic regression analysis were done and adjustments to any confounders were made accordingly. Multivariate logistic regression models were used to estimate the significant predictors (effects of covariates) on the utilisation of maternal health care services at health centre level. The strength of the covariates was also checked, based on the covariates ranks. The estimated effects of covariates on service utilisation were presented by use of odds ratio and 95% confidence intervals. An estimated odds ratio of 1 indicates use of maternal health care is not different from the reference category, if it is > 1 the likelihood of use is higher than the reference category. If it is < 1, then the probability of use of care is lower than the reference category.

Qualitative data analysis went hand in hand with data collection. Each day summaries were made and attached to the corresponding field note. Data analysis was done manually coding the responses into themes. These were then analyzed through content analysis to come up with emerging themes relevant to answer the research questions. These themes were then categorised and summarised according to how they answered the questions. Before final conclusions were made, these views were discussed by a validation team that included two nurses and one lay person. Through the discussion a consensus was reached. The sharing of preconceived notions was an essential part of this process, as it allowed the researcher to separate herself from the data. These themes were also compared with those found in previous studies of user perception of care. To identify their strenghts for making inferences.

3.2.6 RESULTS DISSEMINATION

The results of the study will be communicated to the Northern region Zone office and the District health offices involved, including the Reproductive health Section for Ministry of Health. Finally, a copy of the findings will also go to the University of Oslo library. In addition, the findings will be disseminated via academic papers and conference presentations. Also, through appropriate in-country seminars.

RESULTS

The issues that emerged from both quantitative and qualitative methodologies are linked; thus, they are jointly presented. The results are presented in accordance with the study objectives.

4.1 CHARACTERISTICS OF THE WOMEN

Table 2, shows descriptive analysis of individual and household factors. A total of 393 respondents were interviewed, representing 100% response rate. Of the 393 women, 203 were from Kande and 190 from Bolero health centres. The women from both the health facilities has many similar characteristics. The mean (±SD) age of the women was 25±6.1, the youngest was 14 years and the oldest was 45 years old. 85% of the women were within the age rage of 18 to 35 years. Over three quarters of the women had lower birth orders. The proportion of women under 18 years was 7.6% and 35% of the women were below 18 years when they had their first birth. 86% of the women were housewives and 64.4% didn't have their own source of income. However almost all husbands had a source of income. The main sources of income were business, farming (annually) and fishing. Over 90% of the respondents had attended primary education and could read and write. Few had attended some courses.

Amost all household had access to safe water (93.1%) and had reasonably good sanitation, were more commonly found in about three quarters of the households. The distance between participants home and their health centres (one way) ranged from within 15 minutes walk and over one hour. About 50% of the study population lived 5km away from the health centre.

Table 2: Percent distribution of women from the two health centres according to their individual and household factors characteristics

Characteristic	Total n=393	Kande health centre (n=203)	Bolero health centre (n=190)
Individual characteristics	**n (%)**	**n (%)**	**n (%)**
Age (years)			
≤17	30 (8)	16 (8)	14 (7)
18-35	334 (85)	175 (87)	159 (84)
≥36	29 (7)	12 (6)	17 (9)
Birth order			
1	127 (32)	78 (38)	49 (26)
2-4	193 (49)	90 (44)	103 (54)
≥5	73 (19)	35 (18)	38 (20)
Age at 1st. birth			
≤17	139 (35)	85 (42)	54 (28)
18-35	246 (63)	111 (55)	135 (71)
≥36	8 (2)	7 (3)	1 (1)
Income			
Yes	141 (36)	63 (31)	78 (41)
No	252 (64)	140 (69)	112 (59)
Marital status			
Married	335 (86)	172 (85)	166 (87)
Single	25 (6)	17 (8)	8 (4)
Widow	9 (2)	2 (1)	7 (4)
Divorced	21 (5)	12 (6)	9 (5)
Education			
No education	19 (5)	9 (4)	10 (5)
Primary	247 (63)	138 (68)	109 (57)
Secondary	118 (30)	52 (26)	66 (35)
Course	9 (2)	4 (2)	5 (3)
Household characteristics			
Number of household members Mean (±SD) 6 (2.4)			
Family composition:			
Nuclea	244 (62)	102 (50)	142 (74)
Extended	149 (38)	101 (50)	48 (25)
House construction:			
Permanent	108 (28)	68 (34)	40 (21)
Semi-permanent	116 (30)	51 (25)	65 (34)
Temporary	169 (43)	84 (41)	85 (45)
Sanitation facility:			
Good	325 (83)	156 (77)	169 (89)
Source of drinking water:			
Safe	336 (93)	191 (94)	175 (92)
Wealth rank (property):			
Poor	121 (31)	50 (25)	71 (37)
Average	228 (58)	119 (59)	109 (57)
Rich	44 (11)	34 (17)	10 (5)
Distance to the H.C			
Within 15 min	100 (25)	51 (25)	49 (26)
30 min	123 (31)	83 (41)	40 (21)
1hour	126 (32)	64 (32)	62 (33)
>1 hour	44 (11)	5 (3)	39 (21)

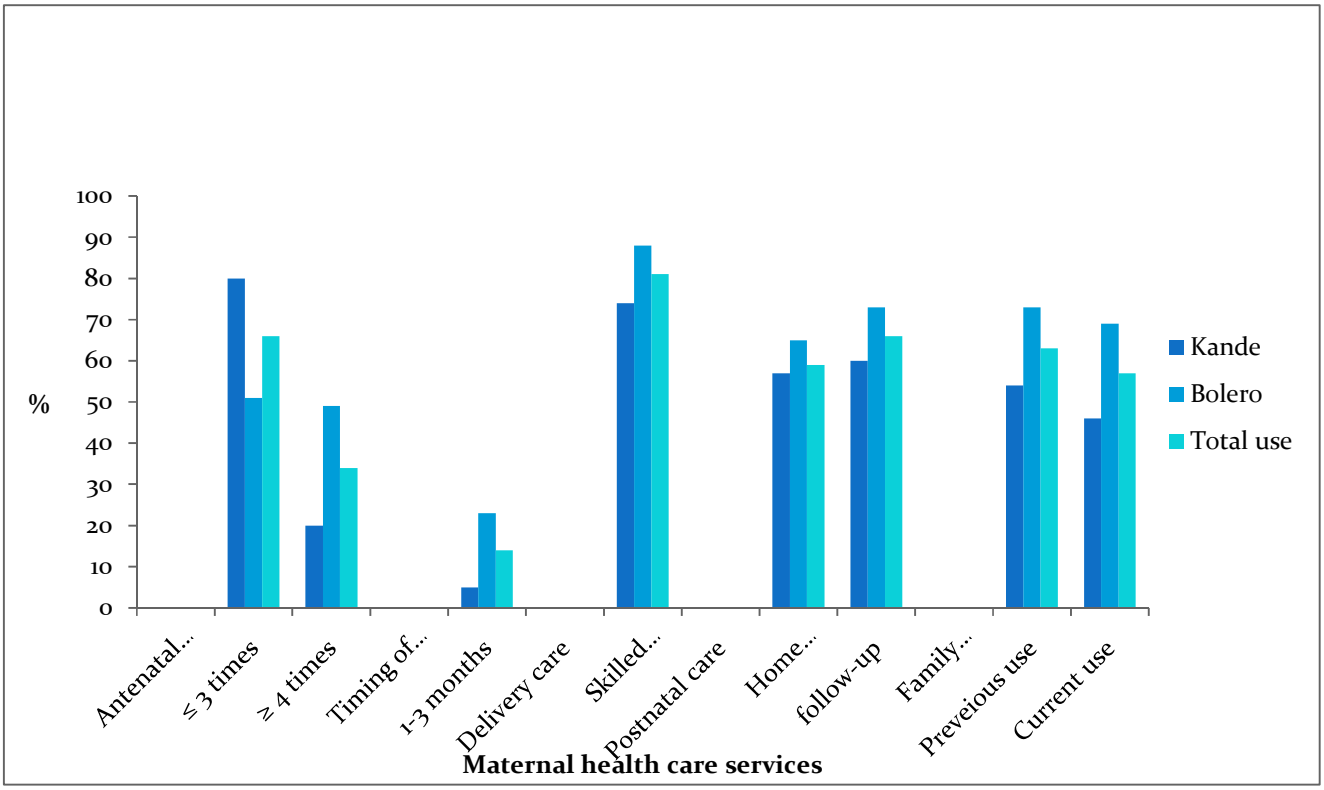
4.2. PATTERNS OF MATERNAL HEALTH CARE USE

4.2.1. WOMENS' RESPONSES FROM THE QUANTITATIVE STUDY

Verbal responses were compared to documentations in the health passports when available. 81% of the women (97% from Bolero and 67% from Kande) had health passport. However only 30% of the health passports had complete documentation of all the components of maternal health services the women utilised (61% from Bolero and 1.5% from Kande).

Almost all the women were in good health at the time of interviews except at Bolero; 41 women had malaria and 3 women were chronically ill. Fig.3 summarises the pattern of maternal health care services utilisation in the two health centres.

Fig 3: Patterns of maternal health care service utilisation; total and at health centre level.



All women from both the communities received atleast one antenatal care check-up. The mean (±SD) visits were 2.5± 1.375 and the range was from 1 to 5 visits. 34% of women attended the four scheduled antenatal care check up, 39.7% of the women made three visits, 12.7% made two visits and 13.5% made one visit. 14% of them started attendance during the first trimester and

70% of the women started antenatal care during second trimester. The corresponding values at health centre levels were; 49% of the women from Bolero received atleast four antenatal check-up, only 23% did so from Kande health centre. At Kande, only 11 (5.4) women out of 203 initiated thier first antenatal care check-up during the first trimester and it was 22.5% for Bolero health centre. The reasons given for making less antental are check-ups and late initiation of the firts visit were; (87.2 %) laziness, (10.4) long distance and 2.4 lack of transport. Incidence of obstetric complications during antenatal care were not common.68.2% experienced no complications while 12.7% experienced high blood pressure, 12.2% swollen limbs and 3.3% bleeding.

87% of the deliveries were done by nurses. As shown in fig 3, most of the women were assisted by skilled attendants at birth. Places of deliveries were as follows; 8.9% on the way to the health centre, 9.7% at the traditional birth attendant, 56% at the health centre and 25.4% at the hospital. At the health centre level the corresponding places of other deliveries were as follows for Kande and Bolero health centre respectively: at health centre (48%, 64%); at hospital (26.1%, 24.7%); TBA (14.8%, 4.2%) and on the way (10.8%, 6.8%). All normal deliveries were expected to done at the health centre level. Kande health centre perfomed only 69% of the normal deliveries while Bolero health perfomed 84% of the normal deliveries. For the deliveries that were perfomed at the hospital, the main reasons for delivering at the hospital were due to complication (29%), prim gravida (34%) and grand multiparity (15%). Outcome of all the pregnancies were as follows; 92% live births, 3% spontanious abortions, 5% stil births, 8.9% of the women had haemorrhage, 10.2% had high blood pressure and 5.3% had fevers.

66.4% attended postnatal care within two weeks after delivery. Of the 76 home deliveries 46 (59.2%) returned for postnatal care. 18 women reported at the facility the same day, while 11 and 17 of them did so after some days and a week respectively.

On knowledge and use of family planning services; The most commonly known methods were; Injectables, pills, IUDs, male condoms, female sterilization and natural methods. 143 women (36.4%) knew three methods of family planning and 22 (5.5%) knew all methods. 56.7% of the women who were not pregnant at the time of interviews were on family planning. Most of the women (86.3%) who were on family planning before the current birth, resumed soon after birth, while 10 (4.7%) were on family planning for the first time.

.2.2 COMMUNITY PERCEPTION OF PATTERNS OF MATERNAL HEALTH CARE SERVICE UTILISATION (QUALITATIVE STUDY)

All of the respondents reported that they were aware of the new policy of utilisation of skilled care for maternal health care services. They also had observed trends of increase in utilisation of health facilities for maternal health care services. Their responses on utilisation of different components of care were as follows;

All the respondents felt that women in their community utilise antenatal care, however 13 of them were not aware about the recommended number of antenatal care visit the women were expected to make and also when they were expected to initiate the first visit. In response to this question some respondants indicated that.

'I think our women do attend antenatal care when pregnant because they need to have the card (health passport) for delivery' (respondent from Kande).

'I know most of our women utilise antenatal care but not sure if they make recommended visits' (respondent from Bolero)

'Pregnant women should start antenatal care when they definitely know that they are pregnant. At least should feel the movement of the baby' (respondent from Kande)

All the respondents indicated that antenatal care was important for the pregnant woman; it was important for them to know the health of the child, for the women to get treatment for malaria and for the women to access HIV testing and care. There was a general indication that getting the antenatal card was very important for the women to be accepted at delivery, Some of the respondents had this to say:

'HIV services are available even for men but our men do not go with their women for HIV test' (respondent from Bolero).

All the respondents felt skilled attendant care at delivery was very important for the women, because complications during delivery are not predicted hence they are easily managed at the health facility than at the TBA. Some said with HIV problem, the child can be protected from it if delivered at the hospital.

'Before home deliveries for woman who had given birth before was ok, but now a lot of complications happen, so let them deliver there'. (respondent from Kande)

'It is safer at the hospital for both the mother and child as deliveries are clean and infections are minimised' (Respondent from Kande)

Some of them indicated that women have really improved in use of skilled attendant at birth. Some women who lived very far away from the facility used the waiting homes to ensure that they access skilled care during child birth. Some felt it was easy to reach the hospital in time with a woman in labour because public transport were available and also they could use bicycles. However some respondents felt not all deliveries took place at the health facilities, they added that;

'Some women still deliver at home but not as many as before' (respondent from Kande).

'Some TBAs are still stubborn, we have been warning them' (respondent from Bolero).

'Families are encouraged to be saving money every month from the time the woman becomes pregnant, this money is used for transport when she is in labour' (respondent from Bolero).

On postnatal care, most of the respondents were not aware of the recommended schedule for postnatal care. For those who knew, thought it was meant for those who experience some problem with themselves or the baby. However they indicated that the women do take their children for under five care.

'Is postnatal care necessary when both the mother and child are fine'. (respondent from Kande).

'The hospital is far, so if both mother and baby are fine then they can just wait for under five care'. (respondent from Bolero).

On Family planning services, most respondents knew the modern family planning methods; they said that the family planning services are available at both health facility and in the community. On utilisation, they indicated that utilisation of family planning methods was lower than before. Many indicate that incidents of cancer have increased and many people feel it is due to the contraceptives. Incidents of unwanted pregnancies were reported to be very low in spite of low use of contraceptives.

'Condoms are commonly used as they are considered to have fewer side effects (respondent Bolero)

'Many are afraid of contracting cancer 'chibuli' (respondent from Bolero)'

The respondents were aware of the common obstetric complication and could recall on their occurrences in the community, all of them reported reduced incidences; Maternal death during the last year; Kande reported no cases while one case was reported from Bolero, the woman died during pueperium, after experiencing haemorrhage in labour the child died on delivery. Two incidence of retained placenta were reported from Bolero, both happened at the TBA, both the women were taken to the health facility and were treated. No incidents for obstructed labour were reported from both Bolero and Kande.Incidents of neonatal death were reported from both the health centres. Kande reports 3 while for bolero it was indicated as sparsely

4.2.3 HEALTH CENTRE OBSERVATIONS ON PATTERNS OF MATERNAL HEALTH CARE UTILISATION

Two nurses one from each health facility were interviewed. The nurses from both facilities were asked to comment on the patterns of utilisation of maternal health care services. Both the nurses reported that they had seen some improvements in service utilisation mainly for deliveries. They said the increase is service utilisation was enhanced by active community mobilisation (done in collaboration with village heads). Also they reinforced use of waiting homes by the women from 38 weeks gestation, mainly to the women who lived more than 10 km from the health centre.

For Kande the nurse added that utilisation of ANC had improved, mainly on making initial antenatal visits during the first trimester, and making 4 ntenatal care visits. There was also increase in those who come for delivery and those who come for postnatal care. However many women did not use the waiting home. To facilitate their turn up the nurse got hold of the health passport of the women who were 38 weeks pregnant, the women usually returned at the health centre within a week or two.

According the documentation available at the facility for 2009. The clinic at Kande health centre in 2005 attended to 679 women in need of antenatal care and 146 women for delivery care. in 2009 the clinic attended to 579 women in need antenatal care and 164 for delivery care. The data in the registers showed that 31 women in 2005 and 57 women in 2009 were referred to the hospital, most of them were primigravidas and grandmultiparous women. The nurse indicated that these refferals were made because she did not want to have obstetric complication at the health centre. She added that there was a policy that say that “no maternal death should take place

at the health centre". She also indicated that a lot of the women still deliver in the community, since there was still no adequate support from the village heads, in mobilising the women to deliver at the facilities.

At Bolero health centre, the nurse indicated that they had observed increase in utilisation of delivery care, but low attendace is observed in utilisation of postnatal care and initiation antenatal care during the first trimester. She added that most women report in the labour ward when in progressed labour. She also felt that some of the women still deliver in the community, in-spite of adequate support from the village heads in conduction of community mobilisation for skilled care utilisation. Based on clinic vital statistic, annual utilisation of care increased. In 2005 total attendees for antenatal care (one visit) was 4,589 women and in 2009, it was 5178 women, for delivery care in 2005 they conducted 599 deliveries and in 2009 they conducted 1178 deliveries.

4.3 DETERMINANTS OF MATERNAL HEALTH CARE SERVICES UTILISATION.

Determination of the determinant for utilisation of care was through responses from both quantitative and qualitative studies. From the quantitative study both individual and household characteristic were assessed to see their effect on both optimal and suboptimal utilisation of maternal health care patterns. The key informants were also asked to explain the factors that facilitated both optimal and suboptimal utilisation of maternal health care.

4.3.1 WOMENS' RESPONSES FROM THE QUANTITATIVE STUDY

Bivariate analysis

Table 3 shows bivariate analysis of determinants of utilisation of maternal health care. Cross tabulations were used and chi-square, fisher exact values and spearman colleration tests were also checked.

(See table 3) Distance to the health facility and levels of education had significance association with having four antenatal care check-up ($p<.05$), use of skilled attendant ($p<.01$). There was a negative correlation between distance and utilisation of antenatal care and delivery care. As distance increased, assistance at birth was likely to be done by non skilled attendant ($p<.01$). 86.9% of the women who were living with 5km of health facility radius and 77% of the women living 6-10 km and more were assisted by skilled attendant at delivery respectively. Of the

deliveries done by non skilled attendants (n=73) 66.7% were from women who lived more than 5 km from the health centre.

Table 3: Utilisation of Maternal health care services by womens' individual and household characteristics.

Background	n	**Antenatal** *4 visits*	*1strim.*	**Assistance** *Skilled attendant*	**postnatal care** *1-2 weeks after del.*	**Family planning** *Current usage*
Age			**			
≤17	30	40.0	16.7	86.7	66.7	60.7
18-35	334	32.3	12.6	80.8	65.6	55.9
≥36	29	48.8	24.1	72.4	75.9	62.1
Parity						**
1-4	320	33.8	14.7	82.9	68.1	54.3
≥5	73	34.2	9.6	75.3	58.9	67.1
Income						
Yes	141	33.8	12.9	83.6	70.7	68.2
No	252	32.1	14.3	79.0	63.9	50.6
Education		**		*		
Primary	247	30.0	12.1	78.1	65.2	56.4
Secondary & course	127	40.2	17.3	85.8	70.9	58.8
Marital status						***
Married	338	33.4	12.7	80.5	67.5	60.9
Not married	55	36.4	20.0	81.8	60.0	32.7
Family composition				*	**	
Nuclea	244	34.8	15.6	78	62	57
Extended	149	32.2	10.7	85	74	56
Distance from the clinic		**		***	*	
Within 30 min	223	35.9	12.6	85.2	70.4	59.0
Within ≥ 1 hr	170	31.2	15.3	74.7	61.2	53.7
House construction:				***	***	***
Permanent	108	34.3	9.3	90.7	72.2	61.0
Semi-permanent	116	37.9	15.5	82.8	72.4	66.9
Tempolary	169	30.8	15.4	72.8	58.6	47.2
Sanitation facility:						***
Good	325	33.5	14.5	81.7	67.4	62.4
Poor	68	35.3	10.3	75	61.8	30.3
Wealth rank (property):		*		***	***	***
Lower	121	39.7	17.4	76.9	62.0	53.0
Middle	228	32.0	13.6	79.4	64.0	54.0
Upper	44	27.3	4.5	97.7	90.9	78.0

****p<0.01,**p<,0.05 *p<0.10*

Levels of education had significant association with only use of antenatal care check-ups. For education its association was a positive correlation, the higher the education the higher the rate

of utilisation. Socioeconomic status significantly associated with utilisation of delivery care (p<.01), postnatal care (p<.00), family planning services (p<.00). Use of family planning was also significantly associated with womens lower birth order (p<.05), status of the house (p<.00), and sanitation facility (p<.00).

Reminding women to come for postnatal care during discharge from maternity care had significant association with use of postnatal care (p<.00). Of 280 women (77.3%) who were reminded of postnatal care during discharge, 87.4% attended postnatal care (p<.000). Only 29% of those not reminded of postnatal care on discharge attended postnatal care care within two weeks after discharge. Utilisation of antental care had significant association with utilisation of delivery care (p<.04), postnatal care (p<.00) and family planning services (p<.04).

At health centre level the individual and household factors, varied in how they affected utilisation of the components of maternal health care services, see fig 4 to fig 7. Higher rates of service utilisation for all components is observed among women from Bolero community. Service utilisation by ranks of most individual and household characteristics indicate that; extended family structure was associated with increase in utilisation of all components of maternal health care services, but was significantly asociated with utilisation of delivery care (p<.02), postnatal care (p<.00) and family planning services (p<.02) only at Kande health centre. Living closer to the health facility was associated with increase in utilisation of all components of maternal health care at both the health facilities. Was significantly associated with utilisation of delivery services at both facilities; Kande (p<.01) and Bolero (p<.03), was also only significantly associated with utilisation of antenatal care (p<.04), postnatal care (p<.03), and family planning (p<.02) at Kande health centre. Good socio economic status was associated with increase in utilisation of all maternal health care services, but was only significantly associated with utilisation of antenatal care (p<.05) and family planning (p<.00) at Kande health centre.

Fig 4. Shows the health centres variations in utilisation of four antenatal care visits by the ranks on individual and households characteristic.

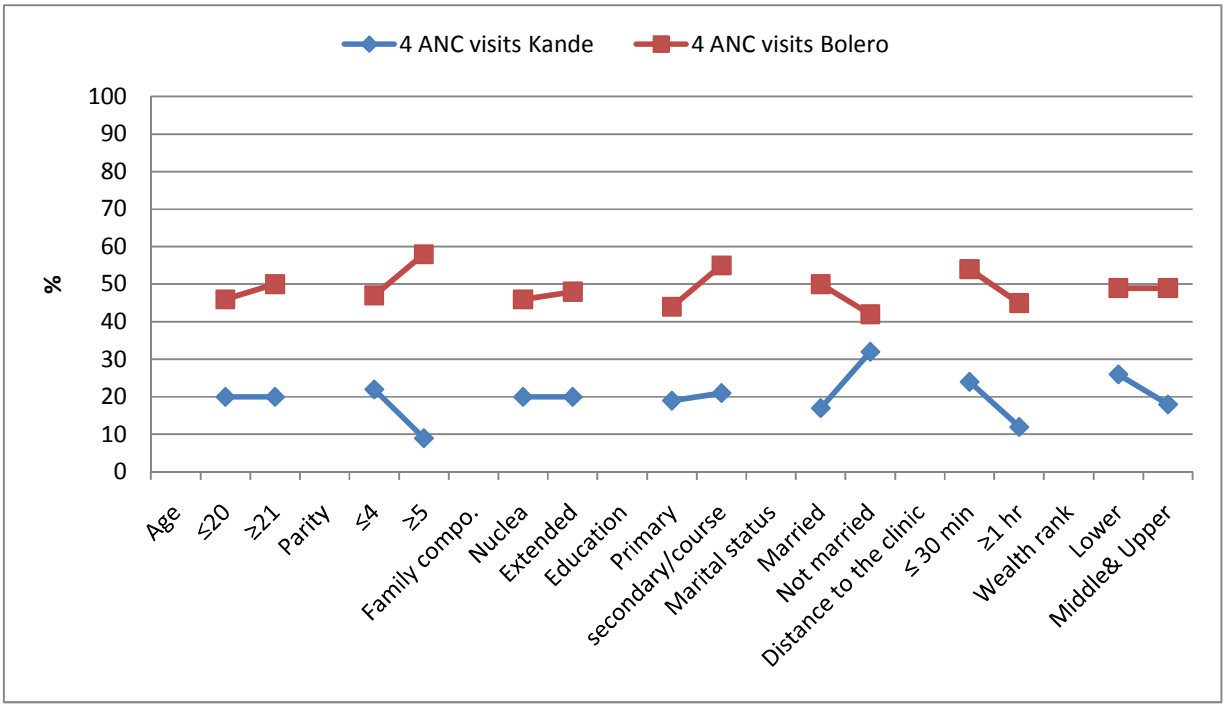


Fig 5. Shows the health centre variation in utilisation of of skilled attendant at birth by the ranks of individual and households characteristic

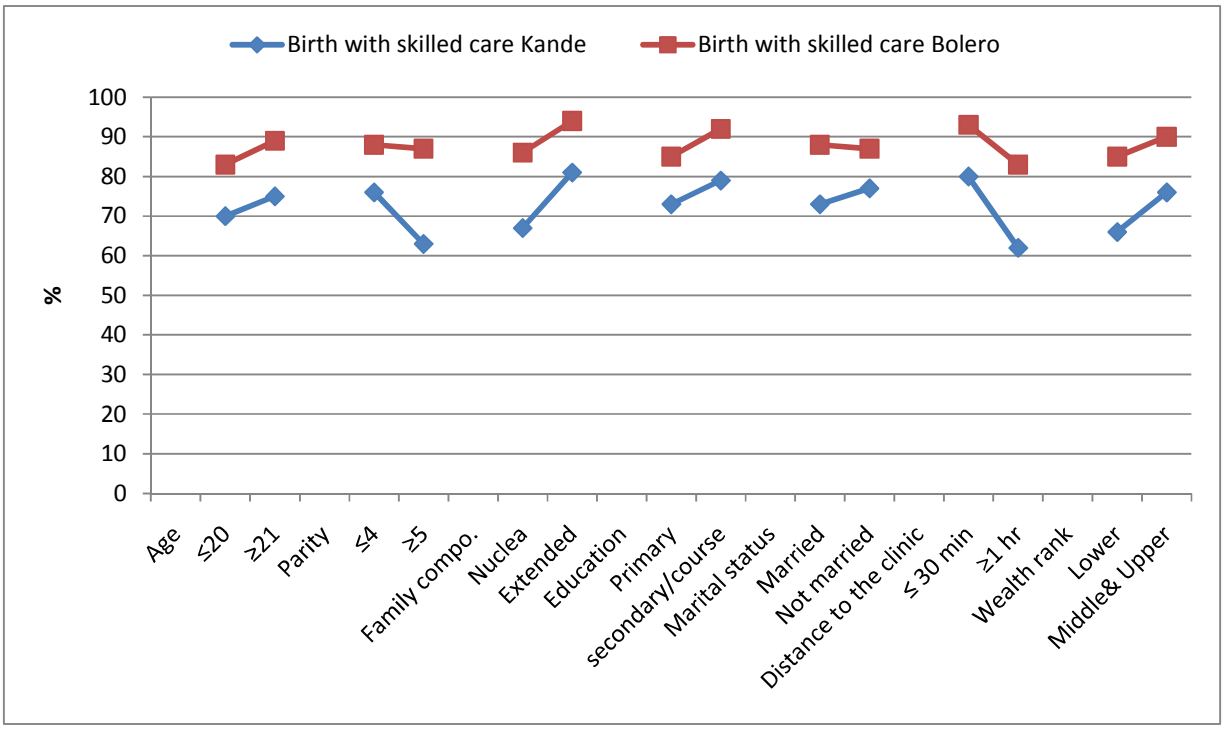


Fig 6. Shows the health centre variation in utilisation of postnatal care by the ranks of individual and household characteristics

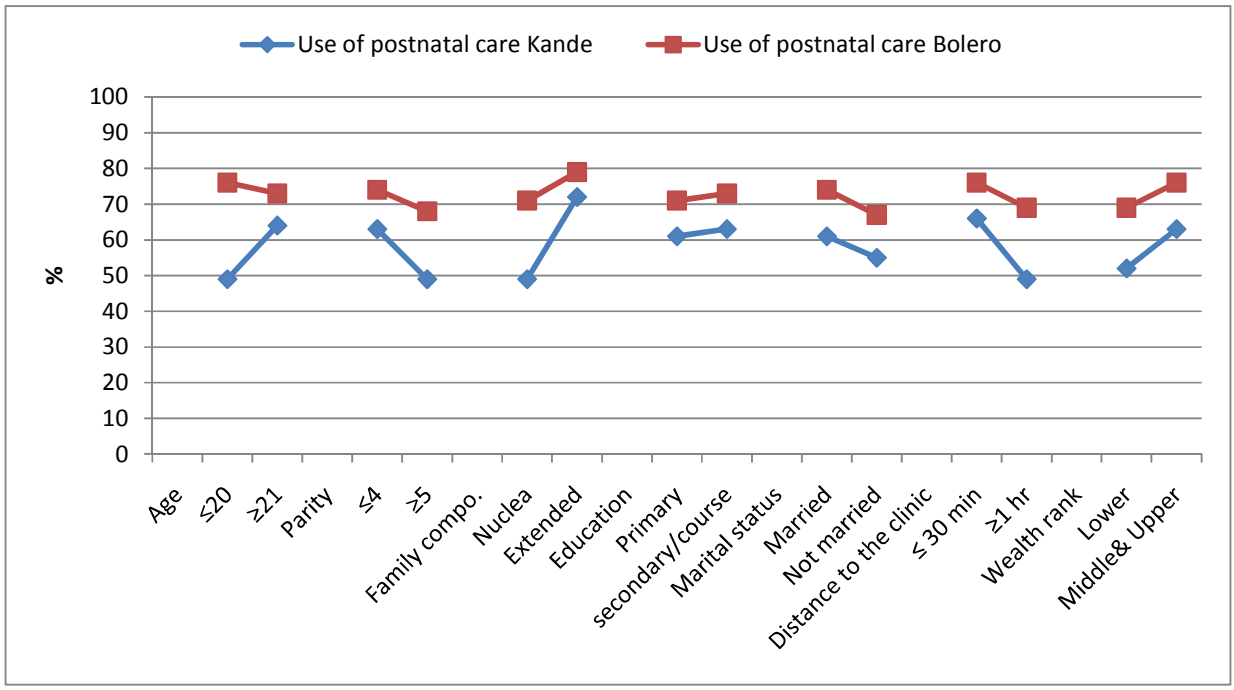
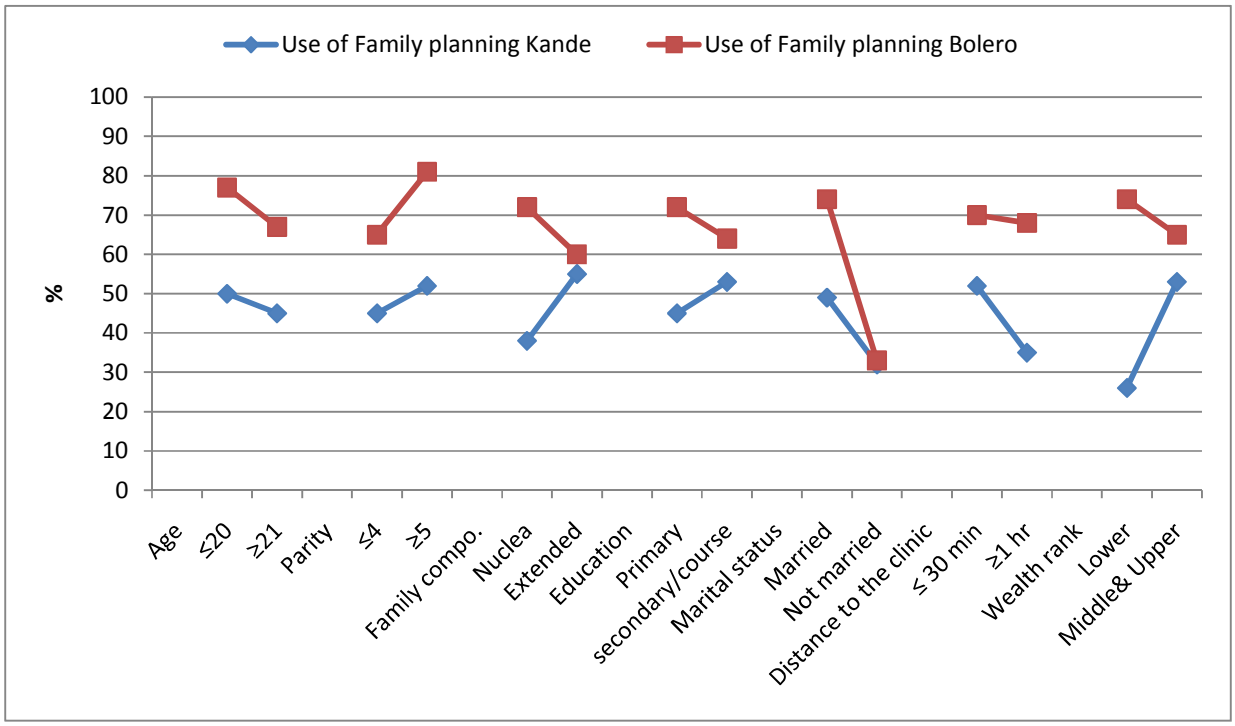


Fig 7. Shows the health centre variation in utilisation of family planning services by the ranks of individual and household characteristics and



Logistic analysis

Results from univariate logistic analysis are presented in tables 4, 5, 6 and 7 .

Utilisation of 4 antenatal care check-ups

Results for univariate regression analysis for use of antenatal care at facility level are given in table 6. Utilisation of antental care for women who lived closer to the health facility was about twice as much as for the women who lived over 5km away at both the health centres. Women with lower parity from Kande were three times more likely to utilise 4 antenatal care visits, while they were 37% less likely to utilise 4 antenatal care check-ups than those with higher parity at Bolero. The odds for having 4 antenatal care check-up at Bolero was 1.4 higher for married women than those not married. While for Kande the probability for making 4 antenatal care chech-ups was 56% lower for married women. Women from households having poor socioeconomic status were twice as much less likely to have 4 antenatal care check-ups at Kande. Household good sanitation status ($p<.00$), distance ($p<.03$) to the clinic and presence of sanitation facilities were significant predictors for making 4 antenatal care check-ups at Kande but not at Bolero.

Initiation of first antental visit during the first three months of pregnancy

Results from univariate logistic regression analysis are given in table 6. The odds for late initiation antenatal care was 2.1/1.9 and 1.4/1.3 higher for married women and those with primary education from Kande and Bolero communities respectively. Younger women from Kande were 62% less likely while those from Bolero had the odds of 1.55 to initiate first antenatal during later months of pregnancy than the older women. Poor women and those who had good sanitation were more likely to initiate first antenatal visit later during their pregnancies at Kande and less likely at Bolero, the odds of 3.4 and 1.3 for Kande and probability of 22% and 39% for Bolero respectively. There was no difference for late initiation of antenatal for women from nuclea and extended family structure from Bolero community, while it was with probability of 17% less for women from nuclea family structure. Higher odd of 1.2 for late initiation of antenatal care was observed for women who came from within 5km for the health facility at Bolero while it was less for the same group at Kande with the probability of 58%.

Table 4: Results of logistic regression analysis on the determinants for the women for attending antenatal care four and more antenatal check-ups in Kande and Bolero health centres (0 = 1-3 visits and 1= 4 and more visits and initiating first visit in first trimester (0= 1st trimester and 1= 2nd and third trimester)

Variable	Kande	Bolero
	Odds (95% CI)	Odds (95% CI)
Antenatal check-ups		
Age		
≥21®	1.00	1.00
≤20	.99 (.45-2.20)	.88 (.44-1.75)
Marital status		
Not married®	1.00	1.00
Married	.44 (.19-1.04)*	1.4 (.59-3.33)
Parity		
≥5®	1.00	1.00
1−4	3.01 (.87-10.39)*	.63 (.31-1.31)
Family structure		
Extended®	1.00	1.00
Nuclea	.99(.50-1.97)	.60 (.31-1.17)
Education		
Secondary/course®	1.00	1.00
Primary	0.85 (.40-1.83)	.65 (.35-1.18)
Distance		
≥1hr®	1.00	1.00
≤30 min	2.39 (1.04-5.53)**	1.45 (.85-2.58)
Wealth rank		
rich®	1.00	1.00
poor	1.6 4 (.77-3.49)	1.02 (.57-1.84)
Sanitation		
Bad®	1.00	1.00
Good	.47 (.22-1.00)***	1.06 (.43-2.63)
1st antenatal visit late		
Age		
≥21®	1.00	1.00
≤20	.38 (.11-1.30)**	1.55 (.63-379)
Marital status		
Not married®	1.00	1.00
Married	2.1 (.55-8.80)	1.9 (.74- 4.72)
Family structure		
Extended®	1.00	1.00
Nuclea	.83 (.25-2.82)	1.02 (.47-2.22)
Education		
Secondary & course®	1.00	1.00
Primary	1.44 (.40-5.10)	1.27(.63-2.60)
Distance		
≥1hr®	1.00	1.00
≤30 min	0.42 (.09-2.0)	1.15 (.58-2.30)
Wealth rank		
rich®	1.00	1.00
poor	3.43 (.43-2.7)	0.61 (.31-1.2)
Sanitation		
Poor®	1.00	1.00
Good	1.26 (.32-5.0)	0.78 (.25-2.5)

®_ reference category; ****p<0.01, **p<, 0.05 *p<0.10*

Delivery care

Table 5 shows the variations by individual and household factors in utilisation of deilvery care; total variations and at health centre levels. Women who came from nuclea families had the odds

of 1.64 not to have assistance by skilled attendant at birth than those from extended family composition (p<.02). Women with lower parity were 33% less likely not to utilise skilled attendant at birth than those with higher parity. Women who had less than four antenatal check-up were about two times less likely to have a ssistance by skilled attendant at birth than those who had four and more antenatal check- ups (p<.04). Women whose household had good sanitation were, 33%, less likely not to be assisted by skilled attendant at birth.

Table 5: Results of logistic regression analysis on the determinants for the women not utilising skilled attendant at birth at each health facility and summary; (0= yes and 1 =No)

Variable	Kande (odds)	Bolero (odds)	Total % use of maternity care	Odds ratio	95% CI
Parity					
1–4	.53*	.89	82.8	0.67*	.362–1.244
≥5®	1.00	1.00	76.4	1.00	
Age					
≤20	1.25	1.71	81.1	1.44	.819–2.523
≥21®	1.00	1.00	85.2	1.00	
Marital status					
Married	1.25	.96	81.1	1.09	.523–2.280
Not married®	1.00	1.00	85.2	1.00	
Education					
primary	1.39*	1.86*	79.4	1.69*	.946–3.035
Secondary &course®	1.00	1.00	85.8	1.00	
Family composition					
Nuclea	2.16*	2.46	78.7	1.64**	.952–2.82
Extended®	1.00	1.00	85.5	1.00	
Distance from the clinic					
within 30 min walk	.42*	.36*	86.0	0.51***	.304–.857
≥ 1 hour®	1.00	1.00	75.9	1.00	
Wealth rank					
Poor	1.67	1.64	79.2	1.41	.831–2.375
Rich®	1.00	1.00	82.7	1.00	
Sanitation					
Good	.79	.81	82.2	0.67	.359–1.233
Poor®	1.00	1.00	79.1	1.00	
Use of ANC					
1-3 visits	.92	2.43**	78.0	1.83**	1.03–3.26
≥ 4®	1.00	1.00	87.0	1.00	

****p<0.01**,p<0.05,* p<0.10*

Older women, those with; good socioeconomic status, higher education, living within 5 km radius from the health facility those not married and those from extended families were more

likely to deliver at the health facility. The following variables were significant predictors for utilisation of skilled attendant at birth; distance (p<.00) to the health facility, family composition (p<.03) and use of antenatal care (p<.04).

At health centre level, use of antenatal care was significant predictors of use of delivery care only at Bolero. Marital status showed no differences in the women utilisation of delivery care at Kande while home deliveries at Bolero health centre were 8% less likely for married women. The odds for not utilising skilled attendant at birth were, from Kande was 1.3 and from Bolero 1.7 higher for women aged below 20 years than among the women aged more that 20 years.

Postnatal care

The strength of these variable at health centre level were tested through univariate logistic regression (table 6). The odds for not utilising postnatal care were higher in both the health centres for women who came from nuclea families, with primary education, those who were poor and those who made less than 4 visits for antenatal care. Women who made less than four antenatal visits were two times more likely not to utilise postnatal care. Women who came from nuclea families from Kande were three times and those from Bolero were two times less likely to utilise postnatal care than those from extended families. At both facilities, living far from the health facility reduced utilisation of postnatal care by about half and coming from a wealthier households doubled the chances of utilisation of postnatal care. Married women, women living within 5 km health centre radius and those with parity less than 4 were 23% to 49% less likely not to utilise postnatal care. However women who were reminded to come for postnatal care on discharge from maternity care were 9% for Kande and 11% for Bolero less likely not to utilise postnatal care. Variations were observed on the influence of sanitation status and age of the women. The probability of not utilising postnatal care was 38% less for women with good sanitation facilities at Kande while it was more for these women at Bolero with the odds of 2.4. Younger women from Kande had the odds of 1.8 for not utilising postnatal care while for Bolero these women were 15% less likely. Giving reminders (p<.00) for postnatal care use and antenatal care attendance were significant predictors of utilisation of postnatal care at both facilities, while family composition (p<.00) and distance (p<.03) to the health facility were significant predictors of use of postnatal care only at Kande.

Table 6: Results of logistic regression analysis on the determinants for the women not utilising postnatal care by health centre; (0= yes and 1 =No)

Variable	Kande		Bolero	
	Odds (95% CI)	SE	Odds (95% CI)	SE
Age				
≥21®	1.00		1.00	
≤20	1.83 (.97-3.48	.33*	0.85 (.38-1.89)	.46
Marital status				
Not married®	1.00		1.00	
Married	.78 (.36-1.68)	.40	.90 (.28-1.75)	.47
Parity				
≥5®	1.00		1.00	
1–4	.57 (.27-1.18)	.37	.75 (.35-1.62)	.40
Family composition				
Extended®	1.00		1.00	
Nuclea	2.58 (1.45-4.61)	.30***	1.54 (.70-3.38)	.40
Education				
Secondary and course®	1.00		1.00	
Primary	1.07 (.57-2.03)	.33	1.43 (.72-3.38)	.35
Distance				
≥1hr®	1.00		1.00	
≤30 min	0.51 (.28-.92)	.30**	.66 (.34-1.26)	.33
Wealth rank				
Rich®	1.00		1.00	
Poor	1.56 (.28-2.96)	1.06	1.39 (.72-2.68)	.35
Sanitation				
Poor®	1.00		1.00	
Good	.62 (.32-1.19)	.34	2.38 (.67-8.45)	.65
given reminder				
No®	1.00		1.00	
Yes	.09 (.05-.18)	.34***	.11 (.05-.24)	.42***
ANC attendance				
1–3 visits	2.32 (1.06-5.04)	.40**	2.71 (1.38-5.36)	35***
≥4®	1.00		1.00	

****p<0.01**, p<0.05, * p<0.10*

Family Planning services

Table 7: shows findings from univariate logistic regression. Women with lower parity were more likely not to use family planning methods than those with higher parity. the odd for Kande was 1.3 and for Bolero 2.3. Women who were married, had good sanitation facilities and were living within 30 minutes walk to the health facility were less likely not to utilise family planning services. Higher odds for not utilising family planning were observed from Kande for women

who were poor (3.2) attended primary education (1.4) from nuclear families (2.0). For the same characteristic of women from Bolero, they were 31 to 35 % less likely to utilise family planning. Use of antenatal care was a significant predictor for use of family planning at both the health facilities, p<.04. Parity (p<.07) was significant at Bolero only while distance (p<.02), wealth (p<.00), family composition (p<.02) and sanitation (p<.00) were significant only at Kande health centre.

Table 7: Results of logistic regression analysis on the determinants for the women not utilising family planning care; (0= yes and 1 =No)

Variable	Kande		Bolero	
	Odds (95% CI)	SE	Odds (95% CI)	SE
Age				
≥21®	1.00		1.00	
≤20	.82 (.43-1.55)	.33	0.62 (.26-1.46)	.44
Marital status				
Not married®	1.00		1.00	
Married	.50 (.22-1.23)	.41	.17 (.07-.44)	.47
Parity				
≥5®	1.00		1.00	
1–4	1.29 (.61-2.73)	.38	2.29 (.94-5.59)	.47*
Family structure				
Extended®	1.00		1.00	
Nuclea	1.97(.72-2.57)	.29*	.60 (.29-1.21)	.36
Education				
Secondary and course®	1.00		1.00	
Primary	1.36 (.27-.89)	.33	.69 (.36-1.34)	.34
Distance				
≥1hr®	1.00		1.00	
≤30 min	.49 (.27-.89)	.31**	.92 (.47-1.75)	.33
Wealth rank				
Have property®	1.00		1.00	
No property	3.22 (1.58-6.55)	.36***	0.65 (.33-1.28)	.35
Sanitation				
Poor®	1.00		1.00	
Good	1.96 (.09-.44)	.41***	.59 (.22-1.57)	.50
Use of ANC				
≥4 visits®	1.00		1.00	
1-3 visits	1.29 (.64-2.60)	.26**	1.16 (.61-2.20)	.33***

****p<0.01**, p<0.05, * p<0.10*

Multivariate analysis

The univariate analysis discussed above are reinforced by the multivariate analysis in (table 8). Estimations of the effects of each health centre and household and individual characteristics which were significantly associated with utilisation of care in univariate analysis (after controlling for individual and household level characteristics) on the likelihood of utilising the various maternal health services were made.Utilisation of all components of MHC serrvices were

2 to 5 times higher at Bolero health centre than at Kande health centre. Distance to the health centre remained significant predictors of utilisation of antenatal care (p<.04), deliverly care (p<.01) postnatal care (p<.03) and family planning services (p<.03). Levels of education remained significant predictor of utilisation of antental care only. Giving reminders for postnatal care remained significant predictor for use of postnatal care (p<.03).

Table 8:Multivariate logistic regression model showing: Health centre differentials in utilisation of maternal health care services controlling for socioeconomic and household characteristics

Background	**Antenatal**				**Assistance**		**postnatal care**		**Family planning**	
	To make 4 Antenatal visits		***Not to have 1st visit in 1st trimester.***		***Not to be assisted by Skilled attendant at birth***		***Not utilising PN care within 1-2 weeks after del.***		***Not utilising family planning care***	
	Odds	***CI***	***Odds***	***CI***	***Odds***	***CI***	***Odds***	***CI***	***Odds***	***CI***
Place of delivery										
Bolero (n=190) ®	1.00		1.00		1.00		1.00		1.00	
Kande (n=203)	0.23	.13-.36***	4.53	2.12-9.35***	3.57	1.92-6.64***	2.35	1.43-3.86***	2.58	1.57-4.23***
Distance										
≤ 30 min	2.13	1.30-3.50 ***			.35	.20-.61***	.51	.32-.81**	.63	.40-.99**
≥ 1 hr®	1.00				1.00		1.00		1.00	
Education										
Primary	.62	.39-.98**								
Secondary / higher®	1.00									

****p<0.01,**p<,0.05* ® = reference category

Note: Control variables included in this model are: age of woman, birth order, family composition, level of education, household wealth, distance from the health facility

4.3.2 COMMUNITY PERCEPTION OF DETERMINANTS OF MATERNAL HEALTH CARE SERVICE UTILISATION (QUALITATIVE STUDY)

Twenty key informants were asked on their perception of the determinants of utilisation of maternal health care in their community. All the respondents felt the implementation of the policy facilitated utilisation of maternal health care. They added that, there was a threat for punishment, in circumstances where complications occur to the woman who was under the TBAs care. Furthermore, if the woman dies, the TBA, would be charged for murder. This evoked fear among the community hence many resorted in using health services mainly for child birth, some had this to say;

'They say that a TBA will be charged for murder if a woman dies with maternal health related case under her care so they are afraid' (respondent from Kande).

On what other factors facilitated utilisation of maternal health care service utilisation, all respondents said these services are readily available at their local health centre.

There is great improvement in the availability of medicine, even for general consultation, women get treatment for malaria, anaemia (respondents from kande/ Bolero).

All the respondents felt there was increased community mobilisation for utilisation of skilled attendant at birth. They added that the Malawi MoH workers were working closely with community leaders in coordination of these mobilisation campaigns. Some of the respondants had this to say:

'I participate in the briefings on why this policy was effected; they say most women have died during child birth' (respondent from Bolero)'.

'We are promoting use of health facilities for maternal care' (Respondent from Kande)'.

Respondents from both the communities also said that the community leaders participated in community mobilisation. They disseminated information regarding use of health facilities for MHC service during their local meetings, at funerals and through church leders etc. From Bolero women who did not comply to this directive were fined in form of chicken or goat by the traditional leaders. However it was not clear if people really complied to the charges as no real case was reported. One respondent from Bolero said that a close relation to the village head delivered at home and they were not sure if she paid the fine.

Many factors that may hinder utilization of MHC services from the health facility were stated. Many respondents from both the communities said that many women in their community were dissatisfied with how they were treated, mainly in relation to interpersonal interaction and service time. Issues that were said in relation to poor interaction clustered around the following issues; the women were shouted at most of the time; for putting on dirty under wear (respondents from Kande), when they were slow to respond to questions and when they came late (after 8 in the morning). For women were in labour, they said the nurses were not usually available and some of them were even delivered by their guardians or cleaners. It was further reported that women in labour were sometimes shouted at when they groan with labour pains.

Five respondents from Kande also reported that most deliveries were done at the hospital than the health centre. They said that most of the women who were referred did not really had obstetric

emergencies, since most of then ended up delivering on the way or just on arrival at the hospital. They wished if more deliveries were done at the health centre since it does not cost them much. They added that, to void these unnecessary referrals, many women resorted in presenting at the clinic already in progressed labour.

As for service time they complained for both maternal health care and outpatient services. Three respondents from Kande said that though the services are readily available at the health facilities, other services except delivery care were not available on daily basis. As such, during the scheduled days there is a lot of over crowding and long waiting time. They said service time was very limited as maternal health care services are provided only in the morning hours. Two respondents from Kande wished the staff were flexible with the women when they come late. At both facilities, when women arrived after 8 am, they are considered to be late, hence they are sent home to come some time irrespective of the reasons.

The respondents also felt the health care staff at the two facilities did not comply to the stipulated clinic opening time. They indicated that the services started late because the nurses usually came late for duties. Many respondents from both the communities said women wait for services for a long period of time before they are attended to but during the time the women were attended to, the nurse was in hurry and had no time to listen to their complaints.

They also said that though the staffs were not enough, the ones available were always out of the the health centre. During most days there was one staff available to provide all the services (outpatient and maternal health care). All respondents from Kande said on thursdays the health facility is opened half day because the staff said they used this time to wash their uniforms. The respondents knew of government stipulated opening times for the facility and they implied that this was done to prevent people from accessing the services, since thurdays are market days. The informants further indicated that thursday being a market day, it was feasible for them to combine their market trip and the clinic visit

Asked as to why the hospital staff behaved like that. This is what they had to say..

The staff complain that they are under staffed, but they always start late like at 10 instead of 7.30. They also move out of the hospital too much and most of the time one officer is available to run all the services (10)

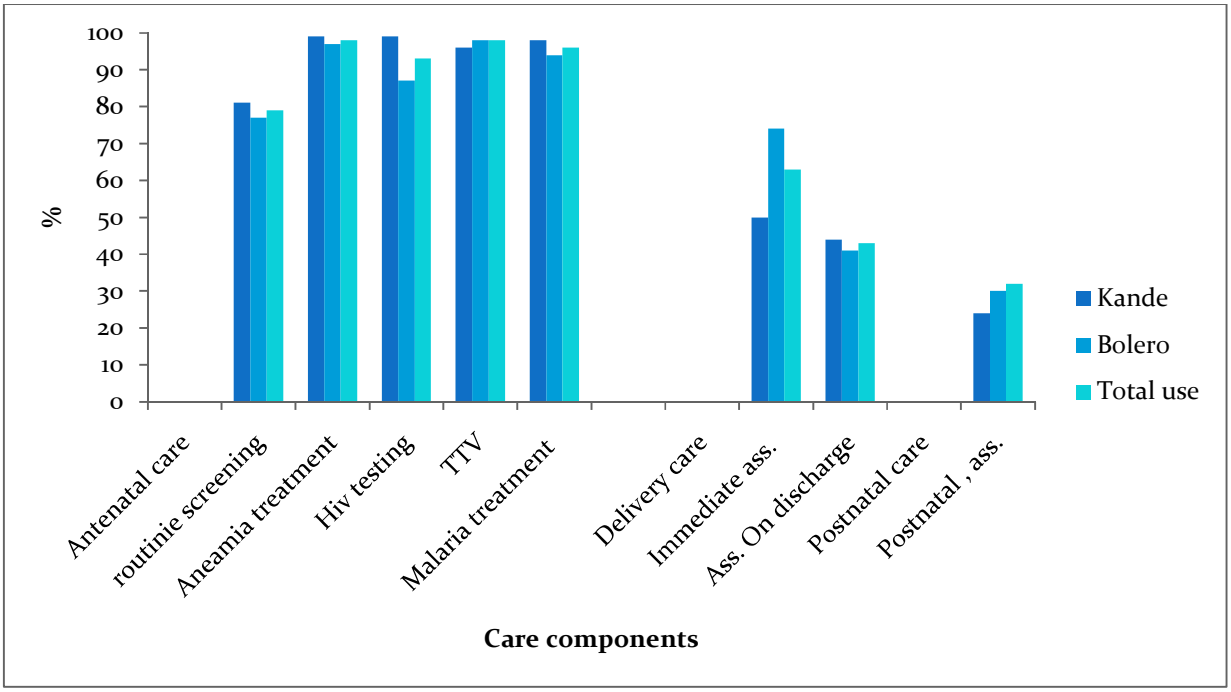
However they felt if all the allocated staff were available the situation would became better.

4.4 QUALITY OF CARE.

4.4.1 SERVICE PROVISION FROM THE QUANTITATIVE STUDY

Details of care offered to the women as part of antenatal care like prophylaxis, screening and vaccinations are also summarised in **fig 8**.

Fig 8 Care women recieved



Routine antenatal care services as shown in fig 8, were provided to most of the women. 98% of the women received atleast one TTV vaccine during antental care, 47% of the women completed their TTV vaccine schedules, 39.4% did not yet complete their vaccinations because that was their first birth and 12.7% restarted their vaccination schedule because they did not present records of their previous vaccinations. Of all the required screening, urine test, syphilis test were not offered to the women because the facilities did not have stocks of reagents. Evaluation on the facilities perfomance of routine assessments was therefore based on the assessment that were commonly done. Of all these 393 women 79% were adequately assessed on each antenatal care visit.

Of 330 women who delivered at the health facilities 63% of the women had all the required assessments done on them before they were transferred to postnatal ward. Only 42.7% of the women women had all the routine assessments done on them during discharge from maternity ward.

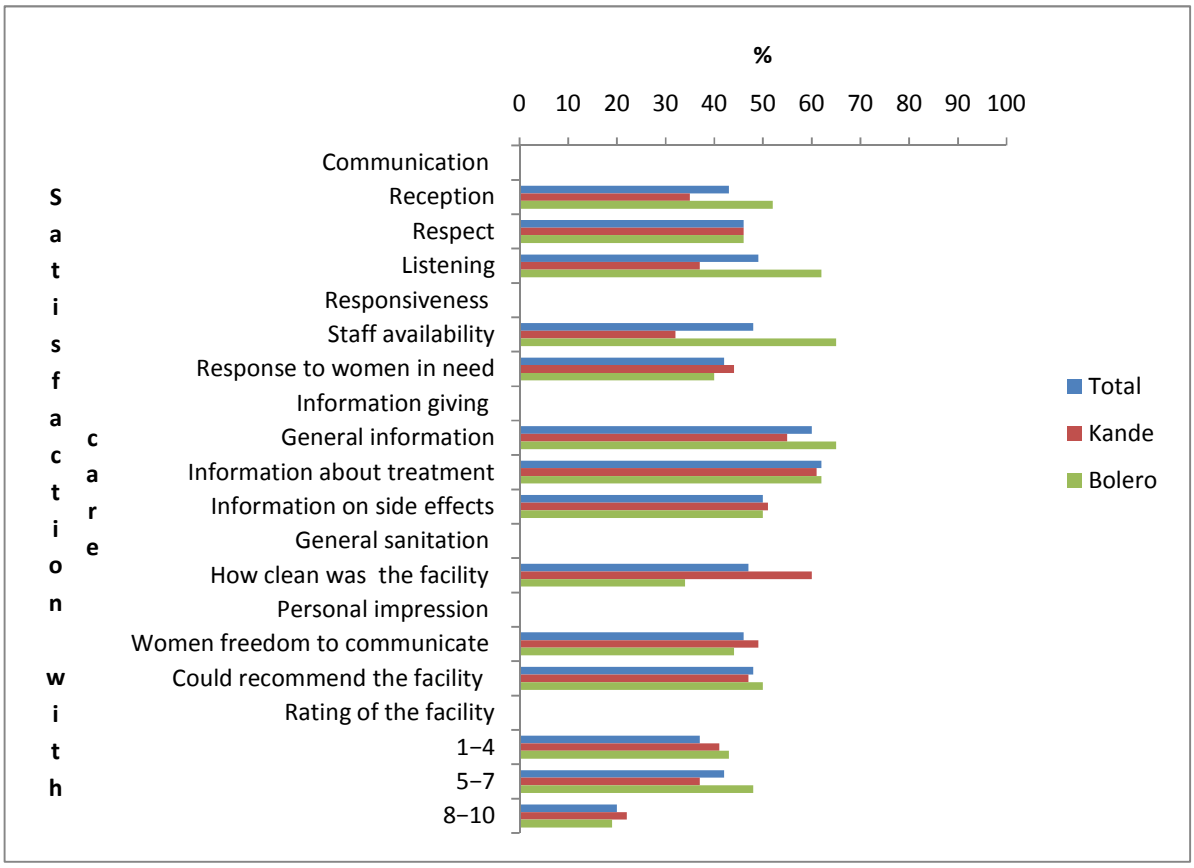
Of the women who returned for postnatal care 32.2% were assessed propery while the rest reported that only the baby had some assessment. The corresponding assessments by health centre were 24% and 40% for Kande and Bolero health centre respectively. When the women were asked about how they utilised postnatal care, most of them associated postnatal care with showing the baby to the nurse after one week, not that it was also for them to be assessed.

4.4.1 WOMEN PERCEPTION OF CARE, FROM THE QUANTITATIVE STUDY

Bivariate analysis

Fig 6, summarises findings on women levels of satisfaction with care. The women were very dissatisfied with components of communication and responsiveness. Less than 50% of the women were satisfied with nurses communication and their responsiveness to women in need of care. At facility level; on communication, only 53% to 46% of the women from Kande were satisfied with the components of communication. Those from Bolero were very dissatisfied with *respect* (46%) and faily dissatissfied with *reception* (52%) and being listened *to* (62%). On responsiveness, over 50% of women from kande were very dissatisfied with all components of nurses responsiveness, while those from Bolero 40% of them were dissatisfied with nurses *timely reponse* when they needed them but 65% of them were satisfied with *staff availability*. Over 50% of the women from both the facilities were satisfied with *information giving* on both general and about treatment. 59% of the women from kande were satisfied with general cleanliness of the facilities while only 34% of women Bolero were satisfied cleanliness. Just below 50% of the women from both the facilities felt they were free to communicate their need and could recommend the facility to the other users. About 20% of the women rated the general quality of care at the health facilities highly.

Fig 9: Summaries the respondents rating of their perception of care.



Some significant association were observed for nurses responsiveness, nurses availability to women in need of care with optimal utilisation of antenatal care both in number of visits and timing of visits, first trimester (p<.022 and .010 respectively). The cleanliness of the health facility also had significant association with use of skilled attendants at birth at Bolero health centre.

Perception of quality of care and respondents' individual and household characteristics

Important trends were observed when compared with their age, level of education and distance from the facility. It was observed that older women were more dissatisfied with the reception (66%) and responsiveness (60%). The rates for younger women were 55% and 52% respectively. Younger women felt they were not listened to more than older; 45% and 56% respectively. They also varied in their satisfaction with information giving 62% and 54% respectively.

For education level, the women who did not attend school were more satisfied with reception (58%), respect (57%), information giving (74%) and cleanliness (58%). However they rated the facility very low; 1-4 (63%). Those with secondary and higher education agreed on some parameters. They were both dissatisfied with reception (78%/65%) and freedom to communicate (68%/63%). However they could recommend the facility to women in need of maternal health care (63%/67%). Those with higher education were satisfied with respect (57%) while over 50% of the others were dissatisfied. Those who did not attend school, those with primary education and secondary education were very dissatisfied with being listened to, staff availability and their responsiveness.

Logistic analysis

Univariate analysis of perception of quality of care are presented in table in table 10. The model comprised some of the individual and household variables, each covariate was compared with group variable of nursing care which were; communication, responsiveness and information giving. The response category (sometimes and never) was used as a proxy for dissatisfaction with care.

Distance to the health facility was asignificant predictors. Women who lived closer to the facility were two to four times more dissatisfied with all the three components of nursing care. Those with primary education were more dissatisfied with communication and less dissatisfied nurses responsiveness, with the odds of 1.15 and probability of 29% for Kande and 1.76 and probability of 68% for Bolero. Women from Kande who were poor were 44% less dissatisfied with information giving and 15% and 26% more dissatisfied with communication and responsiveness, than those who were rich. Women from Bolero who were poor were 18% and 45% less dissatisfied with communication and information giving respectively. Younger women from Kande and Bolero were very dissatisfied with communcation, the odds of 2.3 and 2.4 respectively. The same group from Kande were 46% less dissatisfied with nurses responsiveness and 20% less dissatified with information giving. While those from Bolero were more dissatisfied with the odds of 1.13 and 1.40 respectively.

Table 9: Results of logistic regression analysis on the determinants for women perception of qaulity of maternal health care utilisation (0= satisfied 1 = dissatisfied)

Variable	Kande		Bolero	
	Odds (CI 95%)	SE	Odds (CI 95%)	SE
Communication				
≥21®	1.00		1.00	
≤20	2.3 (.68-7.80)	.62	2.4 (.72-7.93)	.61
Parity				
≥5®	1.00		1.00	
1−4	.96 (.30-3.31)	.63	.65 (.19-2.26)	.64
Education				
Secondary and course®	1.00		1.00	
Primary	1.15 (.45-2.96)	.48	1.76 (.61-5.11)	.54
Distance				
≥1hr®	1.00		1.00	
≤30 min	3,57 (1.35-9.45)	.50**	1.50 (.56-4.05)	.51
Wealth rank				
Rich®	1.00		1.00	
Poor	1.15 (.38-3.48)	.52	.82 (.30-2.26)	.52
Responsiveness				
Age				
≥21®	1.00		1.00	
≤20	.54 (.21-1.38)	.48	1.13 (.41-3.14)	.52
Parity				
≥5®	1.00		1.00	
1−4	1.36 (.46-4.02)	.55	.52 (.18-1.46)	.53
Education				
Secondary and course®	1.00		1.00	
Primary	.71 (.26-1.91)	.50	.32 (.14-.77)	.44
Distance				
≥1hr®	1.00		1.00	
≤30 min	2.12 (.88- 5.11)	.45*	2.30 (.99-5.35)	.43
Wealth rank				
Rich®	1.00		1.00	
Poor	1.26 (.45-3.56)	.52	1.01 (.43-2.35)	.52
Information giving				
Age				
≥21®	1.00		1.00	
≤20	.80 (.37-1.77)	.62	1.40 (.49-3.94)	.61
Parity				
≥5®	1.00		1.00	
1−4	1.34 (.52-3.43)	.48	.81 (.31-2.13)	.50
Education				
Secondary and course®	1.00		1.00	
Primary	.43 (.20-.92)	.38	1.34 (.61-2.88)	.42
Distance				
≥1hr®	1.00		1.00	
≤30 min	4.60 (1.94-10.93)	.44**	1.32 (.61-2.88)	.40
Wealth rank				
No property®	1.00		1.00	
Have property	.66 (.28-1.55)	.43	.55 (.24-1.25)	.42

® _ reference category; ******p<0.01, **p<, 0.05 *p<0.10***

Women with lower parity from both the health centres were 4% and 35% less dissatified with communication. The same group from kande were also were more dissatisfied with nurses responsiveness and information giving with the odds of 1.36 and 1.34 respectively. Those from Bolero they were 48% and 19%, less dissatisfied respectively.

4.4.2 HEALTH CENTRE OBSERVATIONS:

Main findings on quality of care from the observations done at the facilites will be presented.

Facilities and resources

Staff deployment for nurses were below the planned staff establishment at both facilities. Kande health centre is supposed to have 3 nurses, but only 2 were available while at Bolero health centre only 3 out of the 5 required were available. At the time of the study one nurse from each facility was on annual leave and their district hospitals did not provide any substitutes. In such conditions the nurses worked both on day and night duty. The other staff at the facilites are; for Kande, 13 HSAs, 2 medical assistant and 2 ward attendants; for Bolero 26 HSAs 1 clinical office 1 medical assistant and 3 ward attendants. At Bolero, most HSAs live within their communities while at Kande most of them live at the trading centre.

Both facilities had space designated for delivering the components of maternal health care; maternity, postnatal/antenatal ward, antenatal/ family planning clinic. For Kande all the space was available. For Bolero the space for antenatal and family planning care was converted to ART clinic. But a place was designated for antenatal and family planning at the corner in the postnatal/ antenatal ward, screens were used to provide privacy. For Kande confidentiality for the clients was not observed though all the space was available, the nurse did not use the consultation room for antenatal booking, provision of prophylaxis and non injectable contraceptives rather she did all these at the waiting area.

The facilities had stocks of all required resources, medicines and vaccination ; disposable gloves, sterile gloves, fansidar, ferrous sulphate, oxytocin, mosquito nets, family planning method except tubal ligation. Clients in need of tubal ligation service from Kande are referred to Chintheche rural hospital and Nkhata-bay district hospital. At Bolero tubal ligation services are provided by the district hospital and Banja Lamtsogolo, a private family planning service provision

institution. They provide outreach services and Bolero health centre is one of their outreach sites. At both the facilities their blood pressure (BP) measuring machines were out of order and their weighing scale had never been calibrated before. Both the facilities had no stocks of plastic sheets, meaning that the women were still buying this paper even after the government announced that this paper would be made available at these facilities for free. At Kande they had no stock of HIV test kit for over a month.

On cleanliness, the facilities were clean in all areas, toilets, waiting area, examination room, and delivery room. I even observed the hospital servant doing cleaning and dusting very well at Kande. However, for Bolero the toilets were very dirty; these toilets were also used as bathrooms. From observation those toilets had been in that state for years. There were no plans that they would propery clean them because according to the government policies, management of waiting homes is the responsibility of the local government, thus, it was the responsibility of the clients to clean them. However the toilets needed major cleaning with resources that the clients would not easily afford. The facility has flash toilets at the maternity ward, the women were only allowed to use them before they deliver beacuse after delivery the women use sanitory pads, hence they indicated that they protecdted them from being blocked by the local sanitory pads.

Service delivery

The main services provided to women were: antenatal, labour and delivery, postnatal and family planning. The priority service was labour and delivery care, this care was provided 24 hours of the day. Bolero health centre provided the services every day, while at Kande the services were provided on specific days; ANC is provided from Monday through Wednesday, F.P on Thursday and Friday are days when they write progress reports. At both the facilities women arrive at the health centre from 7:00 to 8:30 am. The services usually start at around 9:30 am. At Kande they only conduct normal deliveries, thus they only attend to women with second to fourth order of pregnancy. Those with first and over fourth order of pregnancy are prone to having obstetric complications hence they are reffered to the hospital for child birth. This group of women from Bolero health centre were attended to, refferals were made only on the women who actually presented with high risk factors. The nurses from both the health facilities were supposed to be doing outreach services and home visits, however these services were not provided due to shortage of staff.

At both the facilities they have to follow the comprehensive approach to service delivery. Stipulated routines for service provision for the include; The services should start with group health education, then all the women are screened by examination of their body weight and blood pressure (BP). following this, the women are supposed to have individual consultations based on their needs that included; registration (new visitors), examination on the pregnancy and foetus, recieving the family planning method of choice, prophylaxis treatment for malaria and aneamia and mosquito nets . Through this consultation the woman get individual counselling based on her problems. At Bolero health centre, nurses followed the stipulated guidelines to service delivery. At Kande the services were not available on daily basis as already discussed, and they used group service delivery. Most of the services were done at waiting area except pregnancy examination and provision of injectable family planning methods. The women scheduled to receive mosquito nets were given after all the women are attended to, thus had more waiting time. This process challenged privacy to the clients, mainy during registration for the new visits (ANC). At the time of observations BP was not taken on the women at both facilities because the measuring machines were out of service .

Bolero health health centre is supposed to provide, BEmOC services, from observation they did not fully provide the services as emergencies, equipment for assisted delivery and vacuum aspiration were put in a cupboard and not easily accessible for immediate use.

Both facilites had very functional referral systems. They used mobile phones and wireless message. Bolero health centre has three bicycle ambulances while Kande has a fulltime ambulance which was donated by some stakeholders doing business within the catchment area. The stakeholder provide both fuel and salary for the driver. Both facilities have also access to the ambulance from the hospital and it takes 10 to 15 minutes to reach the facilities in emergency.

On documentation and record keeping; registers were used to document daily service delivery for each component of maternal health care services. Monthly summaries were made at the end of each month, this constitute their monthly report. Monthly summaries were well documented. labour charts were in place. Scanning through a number of labour charts, it was observed that many women in labour report at the maternity when in second stage of labour. But the records, like used registers, labour charts were not properly stored, they were scattered.

At both facilities other procedures for duty were not followed forinstance, handover reports were done verbally and duty roster were not written and posted.

5. DISCUSSION

Utilisation of maternal health care services was studied within a policy change of skilled attendance. Skilled attendant approach, focuses on ensuring that women utilise quality modern medical care, thus the services should be available, should be provided by a qualified skilled staff and a setting that has all resources required to provide care. Other important components of skilled care are proper management of the services and community mobilisation for service utilisation. Thus, the implementation of skilled attendance approach focuses strengthening the supply and demand for maternal health care services. This study identified alot of issues that had some important implications to utilisation of skilled attendants for maternal health care services. However, it was not possible to include all in the discussions. The following are discussions of important issues that emerged in this study. First, the general characteristics of the respondents, patterns of service utilisation and determinants of service utilisation will be discussed. Then the operational issues observed in implementation of skilled attendance relating to quality of the services, accessibility and availability of the services are discussed in line with their implications to service utilisation.

5.1 SUMMARY OF THE FINDINGS

Good socioeconomic status for health has been acknowledged to be a secondary modality for prevention of maternal mortality and morbidity (53;87;88). In such environment women have less exposure to infection and their physical health is strengthened. This study shows that most of the women from both the communities had good socioeconomic status and good health. However some 30% were poor and 43% were living in temporary houses.

All the sources of information on utilisation of maternal health care services indicated that there was increase in utilisation of skilled care mainly for child birth. Personal interviews show that, all women utilised atleast one antenatal check-up, however, low utilisation was observed interms of making four antenatal care check-ups and initiating care within the first three months of pregnancy. Utilisation of skilled care at birth was higher than utilisation of the other components of maternal health care services. The community percieved use of skilled care at delivery as very important. There was also lack of awareness on the recommendations for both antenatal and postnatal care utilisation. Low utilisation of antenatal and postnatal care also corresponded to the community perception of low importance of these services. Most of the respondents knew some

family planning method available in the community or at the health facility. However, only a few 22 (5.5%) knew all methods. The use of family planning was generally good, most of the women (86.3%) who were on family planning before the current birth, resumed soon after birth, while 10 (4.7%) were on family planning for the first time.

Factors influencing maternal health care services utilisation operate at various levels individual, household community and state. Effective interventions to promote maternal health service utilisation should target the underlying contextual issues (32;39;51;63;67;89). This study focussed on understanding these determinants from individual and household factors. Some of individual level factors studied were; age, parity, education and marital status while household factors studied were distance to the health centre, socioeconomic and household sanitation facilities. The effects of these factors were tested by proportional, levels of significance and the strength of their association by ranks of the covariates. Distance to the health facility was a significant predictor of utilisation of almost all components of maternal health care (see table 8) while levels of education was a significant predictor for use of antenatal care. Use of antenatal care was a significant predictor for use of maternity care, postnatal care and family planning services. Availability of higher household wealth was a significant predictor of utilisation of family planning service while giving reminderd for follow-up postnatal care was had significant a significant predictor of utilisation of postnatal care. When comparisons were made between the ranks of these covariates. It was observed that younger and married women were less likely to utilise these services than those who were not. While older women (above age of 20), those with low parity, with higher education consistently utilised the services more than their counterparts. Furthermore, women who came from households with increased socioeconomic status, who lived closer to the health facility and whose household had good sanitation facilities consistently utilised the services more than their counterparts.Higher odds for service utilisation were observed at Bolero health centre. Women from Kande area were 74% less likely to make four antenatal visits; were four times more likely not to utilise skilled attendant at delivery, 2 times more likely not to utilise postnatal care and three times more likely not to utilise family planning than those from Bolero (table 8).

On perception of quality care; In general boarderline perceptions of quality of care were observed for all the parameters women perception of quality of care. Very low perceptions on many parameters were observed more among women who attended at Kande health centre. Very low perceptions on sanitation were registered for Bolero health centre. This was due to the poor condition of the toilets which the women use after delivery. Women perception of poor quality of care were not significantly associated with their tendency to utilise each of the components of maternal health care.

5.1.2PATTERNS OF SERVICE UTILISATION

Utilisation of maternal health care in the study areas as shown in table 3, has improved. These findings shows higher rates of service utilisation than the current national projections (7;90). Higher service utilisation have been reported by studies done at district and health centre level in other countires that implement skilled attendant approach (2;16;18;61). Thus, data on utilisation of skilled attendant at birth, agreed with results of those studies. Low utilisation of antenatal care observed in this study also agrees with other studies (39;53). However, this study observed some positive trends towards future improvements in service use for antenatal care. The majority of the women (73.5%) made more than three antenatal check-ups and 70% of them initiated care during second trimenster. Most of the women who had at least two antenatal check-ups accessed all the recommended preventive and curative services. Though postnatal care utilisation is reported to be generally low in other studies (22;58;91), this study shows improvement in the current usage of postnatal care in the study areas (64%).

This study observed that delivery care was prioritised over the other components of maternal health care. It is was evident that delivery care was perceived to be a very important service by both the nurses and the communities. The nurses prioritised provision of maternity care over the other components and the communities showed strong awareness of risks associated with child birth, mainly that many complications that occured were unpredictable. Also the mobilisation campaign done in the community leaned towards promotion on skilled attendant at birth. Use of care has been reported to be influenced by perception of importance of the service by the users. Usually levels of importance are determined by the pereceived risks (89;92). This may explain

the high rate of utilisation of skilled attendant at birth and lower utilisation of the other components.

Giving priority to provision of maternity care is indisputable since it is evident that most maternal deaths occur during and immediately after delivery. Use of skilled attendant at birth most often reduces incidence of maternal mortality substantially (2;3;18;19;24;44). However, utilisation of the other components of maternal health care services complement to the womens' good health outcomes. Use of antenatal care also promote utilisation of maternity care (23), similary in this study women who made a minimum of four antenatal check-ups, most of them also utilised optimally maternity care and postnatal care. However, this care should be of good quality for good health outcomes to be realised, women should utilise quality maternal health care services from pregnancy to postpartum to prevention maternal mortality and morbidity (3;39). Through these contacts women also have access to relevant health education and routine preventive and curative interventions (39). Campbel and Klein identify the complementarity of the single interventions[2](15;40); Strategic timing for provision of preventive and curative services coupled with effective screening during antenatal and postnatal care is very important for risk identification, prompt treatment. Koblinsky adds to it the role of access to skilled attendants and good refferal system (3;53). It is therefore imperative, to promote utilisation of skilled attendance for Maternal health care services, rather than just focussing on promotion of utilisation of skilled attendant for child birth.

5.2 DETERMINANTS OF SERVICE UTILISATION

The effects of individual and household factors varied in their influence on utilisation of the components of maternal health care services and also at health centre level. Not all variables were equally important for utilisation of the four components of maternal health care service and also the variables important in one health centre were not necessarily relevant at the other health centre. Similar observations were reported by other studies (51;52;63;67;87;89;93-96). This suggest that the effects of individual and household factors on utilisation of care are further influenced by contextual factors. The findings of the effects of levels of education, socio-

[2] The effectiveness of utilisation of quality ANC, Maternity care, postnatal care and Family planning.

economic status and distance to the health facilitiy, been consistently significant predictor for utilisation of maternal health care service utilisation reported in this study agrees with findings of other studies (51;52;63;72).

Use of antenatal care was a significant predictor of utilisation of postnatal care and family planning at both the health facilities, it was a significant predictor of utilisation of maternity care only at Bolero health centre. Women who utilised four antenatal care check-ups were more likely to utilise the other components of maternal health care than those who made less antenatal care visits. Similary other studies found the same relationship (39;67;72;97). This relationship may correspond to the education role of antenatal care services, in informing women of the birth preparedness, possible obstetric risks and significance of utilisation of maternal health care services. Use of antental care may not always translate into improved utilisation of the other components of maternal health care services, mainly in situations where the women do not access adequate counselling (49;98;99). For this study, this association is relative, as the study did not measure specific contributions of utilisation of antenatal care. However it may suggest that utilisation of antenatal care influenced a culture of health seeking behaviour. Similary, it was also observed that giving reminders for follow-up postnatal care was also a significant predictor of utilisation of postnatal care. Giving reminders in this case may suggest that utilisation of one component of maternal health care can be an opportunity to promote the utilisation of the other components.

This study identifies some disparities in use of maternal health care services which stem from low levels of autonomy. In this study womens' autonomy may be limited due to low education, poverty and male dominance. About 80% of the women were housewives, over 70% of the women attained up to primary education and about 89% of them came from households with poor socioeconomic status. Consequently, higher odds for under-utilisation of maternal health care services were among women who were married, younger and with low education and socioeconomic status. These communities practice patrilineal family structure and most decisions were likely to be made men (32;33). Thus, the dimensions of autonomy that impact on health care facility use, such as position in the household, financial independency, mobility and decision making power (72) were evident among the women from both communities.

Effects of low autonomy are reported to reduce among women with higher levels of education and those with good socioeconomic status (63;67;69;72). Women with higher levels of education may have higher access to health related information. Higher levels of health awareness may consequently lead to good health seeking behaviours. This characteristic coupled with financial independence may improve their ability and freedom to make decisions (63;67). Similary in this study most of the women with higher levels of education and income had higher levels of utilisation of MHC services. However it was observed that there were very limited opportunities for most women from these communities to gain informal autonomy. Most of the women attained up to primary education and relied on their husbands for financial support. Attainiment of primary school education was observed not to be enough for the women to have autonomy. There was no difference in service utilisation among the women with no education and those with primary education.

As already discussed, utilisation of care may be influenced by perceptions of importance of the services. More information on significance of service utilisation are more likely to be shared to women through their contacts with health care system like, during child care and antenatal care. Men have less access to such information and may not value it, consequently may not support the women in service utilisation. Male involvement in maternal health care would be an opportunity to target men with messages on significance of maternal health care service utilisation.

Further more, the womens' dissatisfaction with care in this study did not influence their utilisation of the health care services. This could also be influenced by inavailability of altenative health care services. Women would go for quality, if quality alternative services are accessible and affordable (3;15;24). However, as discussed above the effects of low autonomy were very evident. It is likely that womens' low autonomy reduced their capacity to demand their rights to quality care. Thus, the women had to endure those experiences. Access to quality maternal health care services is a right for the women and service providers have a duty fulfil this right (100). It was not clear if health care staff were aware that they are accountable to their communities. Since the women had low autonomy to demand quality services, womens' right to quality care would be reinforced by actions of external support systems, for example the role of health centre management commitee. This committee which comprise the community heads, influential people and health centre management, forms a forum for ensuring that there is harmony between health

facilities and communities. It is also the voice of the community in demanding quality of care. At both facilities, these committess are non existence and no efforts were put in place to revive them. This could be the reasons why the facility staff are not responsible enough (they came to work late, and were usually absent). There is need for civil society support in ensuring that right to quality care is upheld by the duty bearers. Strategies that can boost women autonomy, like increase access to micro finance support and promotion of women education beyond primary level should be encouraged.

Perfomance of mobilisation campaigns for service utilisation was also observed to be another determinant of services utilisation in this study. The strategy used in community mobilisation for skilled attendant at birth was successful in increasing utilisation of delivery care services in these study communities. Importance of involving communities in health care delivery has been widely recognised (63;67). Strong community interventions like mobilisation and home visits, when done in collaboration with the communities, increases the demand for skilled care (33;70). Thus working with community leaders and TBA, in social mobilisation for the utilisation of MHC and the role played by the HSAs was effective for service utilisation in the study areas. Collaboration in conducting mobilisation were observed more at Bolero community. Consequently women from Bolero community utilised services more than those from Kande communities.

Universal utilisation of skilled care by the women is the ultimate aim of the current initiatives in promotion of service utilisation (1;12;13;23;47). Thus, patterns of maternal health care service utilisation observed in this study were still below the expected targets, There is need for more mobilisation for service utilisation and even new strategies are needed. The mobilisation campaigns done in the study areas focussed mainly on promotion of utilisation of skilled attendant during child birth. The actual messages were on the importance of use of health facilities for child birth and threatening of the traditional birth attendants, that they will be arrested for continuing attending to the women. Some studies have reported that high rates of utilisation of TBAs for care by the women were associated more with their dissatisfaction with care at their health facilities (31;33;101). Similary this could apply to women from these two communities, thus, attaining their required response to utilisation of skilled attendants will depend on womens' personal or communty awareness and evidence of improvements on current

service delivery at the health facility. However no much improvements were observed in the health care systems, enough to motivate the women.

The ongoing community mobilisation campaigns need to also focus on addressing community knowledge gaps. This study identified that low service utilisation in these communities may be also associated with knowledge gaps on the part of the community. This was reflected through the women tendencies to; utilise delivery services more than the other services, late presentation at the health centres when in labour and perceptions that use of family planning is the main cause of the escallating numbers of cancer patients.

There was general perception that, utilisation of skilled care for child birth was very important than other components of maternal health care. as already discussed, there is enough evidence that utilisation of all components of maternal health care services may be a prerequisite for good pregnancy outcomes. Thus, the communities need more awareness on this, for them to view maternal health care as three in-separable components that should be utilised; Late presentation to the labour ward was partly associated with womens' fear of being referred to higher level facilities. The women observed that some of the women who were reffered to higher level facilities were not eligible as they did not present with obstetric complications. Such instances are expected in practice, since risk identification is usually presumptive and may not lead to development of the actual complication. Thus women need to understand the positive side of prompt referrals. However, referring primiparous women and grandmutiparous women observed in this study was not justifiable; All normal deliveries are supposed to be done at the local health centre. Of all the women who had normal deliveries, Kande health centre perfomed only 69% while Bolero health centre perfomed 84%. This May really imply that unnecessary referrals were really done; There is need for more community awareness on the importance of early presentation to the labour ward for the women in labour. Effective maternity care may be provided if the women report in labour ward earlier. Early presentation when in labour enhances the women chances of accesssing routine assessments. Routine assessments throughout the period the woman is in labour are important for early risk identification (19;19;24;25;37;40;44;102). In case of complications, they can be detected in time and timely referrals to higher level of care if required are possible.

Though 10% of the women utilised family planing services for the first time, utilisation of family planning reduced by about 20% for the women who were previously on family planning. This change may be influenced by general perception that use of family planning cause of cancer of the breast and uterus. It is evident that the cause of cancer is unknown. Use of horminal family planning services is reported to have very little association with cancer of the uterus (103). Furthermore, common side effects associated with use of family planning method which are weight gain, bleeding, mood swings and effects on bone mineral density cause some discomfort to some women who use the method (104). Service providers need to address these concerns and where possible, family planning methods which are hormonal free like natural methods, condoms and IUDs should be promoted. Cultural methods of family planning[3] are available however their effectiveness may be qustionable as they are equally affected by usage errors. And also it may be very difficult to emperically test their effectiveness. Counselling for use of family planning should encompass explanation of both the effectiveness and side effects of the methods. Nevertheless, the importance of use of family planning outweighs the risk for cancer since the incidence of cancer is very low but use of family planning create significant impact on social, economic and health outcomes (104).

It was also observed that the current mobilisation campaigns did not pay special attention to individuals that are affected by low levels of autonomy. Where possible, focussed health education targeting the poor and men should be prioritised. Health information to the women in these study areas should use very simple language to facilitate easy understanding.

5.3 QUALITY OF THE SERVICES

The implementation of skilled attendance may be guarantee for provision of quality care. Conceptually this approach ensures the availability of a skilled attendant and an enabling environment of all resources that are important for delivering quality maternal health care services. In practice it is observed that it is not possible to vividly translate the concepts and principles of skilled attendance to practice especially when the approach is implemented in the rural areas (5;16), hence requires national adaptations (5). Different implementation strategies

[3] Abstinance and use of herbs

have been used to promote increase utilisation of skilled attendance. Ekele et al suggest that, where access to emergency obstetric care is available the focus should be at 'who conduct the services and not necessarily where'(62). As such some countries have opted to use home delivery approach with use of non proffessional Skilled Birth Attendants (SBA) (16;61) and use of retired midwives, midwives assistants (3;39;105). The Malawian strategy use facility based approach only.

The following will be discussions of quality of care based on the observed and perception of quality by the women and communities

5.3.1 OBSERVED QUALITY OF CARE

This study observed that the Malawian approach of implementing skilled attendance was unique. It focused on implementation of skilled attendance through public health facilities and with use of national accredited skilled attendants. Other interventions are still using non proffessional trained skilled birth attendants and with operational support from development partners (2;5;16;61). This study established that basic infrastructure and resources for provision of basic emergency obstetric care were available at both the facilities. Though these health centres had space for service delivery, basic supplies, and good enough referral systems, they experienced some challenges to bring skilled attendance to the rural women, mainly in making the services available and ensuring quality of the services. Other than shortage of staff this study established that failure to provide skilled attendance was due to administration short falls; lack of integration of the verticle programs, inadequate monitoring skills of the providers, lack of efficiency in services provision and poor and supervision.

The problem of shortage of staff was compounded by the multiple roles the nurses have at the health facilities. It was established that the health centres were implementing a number of vertical programs. Delivery of most of these other services were rationalised to specifc week days, and the clients for these services were told to report at the same time they offer the routine services. Possibly this approach used to work when the demand for services was low. Currently the disease burden is high and there is more awareness on the need for health care services utilisation, hence the demand for services is high. In the course of attending to other clients, the women in need of maternal health care have long waiting time. Beisides the nurse may inturn have burned out. There is need for operation reforms, administratively the services can be organised to reduce

pressure on the providers and better services for the women. Some activities can be delegated to other cadres and service delivery can be organised. It was observed that the demand for routine services was usually heavy in the morning hours and also from monday to Wednesday. This leaves out afternoons and thurdays and fridays as possible day to run other clinics. Clients who attend most of the clinics (ART) are usually self motivated, thus may easily comply to rationed times for service delivery than those who come for routine care, like maternal health care services.

This study identifies that skills to manage obstetric complications were very fundamental to provision of skilled care. Nurses who have required skills are usually confident in service delivery (37) and this also enhances community confidence in them (105). Nursing staff allocated at both the health centres do no meet the requirements of a skilled attendant as per the WHO definition (12). However, Malawi considers them as skilled attendants because their curriculum empowers them with required skills to manage normal delivery and identify and refer those with obstetric complications (16). The nurses' skills further improve when they undergo BEMoC trainings and also through mentorship. Nurses at Bolero HC were trained in BEMoC skills, and were likely to be regulary supervised, consequently they demonstrated to be more competent than those from Kande HC. Nurses from Bolero conducted most of the normal deliveries than those from Kande HC.

Malawian MoH guidelines for the delivery of maternal health care services stipulates that the services should be delivered through comprehensive delivery approach. However it was observed that not all health facilities comply to this guideline as evidenced by the variations in the service delivery approaches at the two health centres. Maternal health services were available on daily basis at Bolero and on specific days at Kande health centres. This study identifies that, lack of implementing comprehensive MHC services delivery at Kande HC limited the accessibility of the services to the women. Thus, women had to make more visits to recieve MHC and child care services. Multiple roles of women in a home have been identified as another barrier to service utilisation (68). Comprehensive services delivery approach is very appropriate in these settings, as it limits womens' contact time with the health facilities. Higher rates of service utilisation at Bolero health centre could be associated with MHC services availability and accessibility since they practice comprehensive services delivery approach.

Furthermore, accessibility to the services was limited due to limited service time, long waiting time for the services with short contact time. The stipulated service time in public health care services is eight hours, thus from 7.30 am to 4.30 pm.The decision to offering facility based maternal health care services only in the morning hours was made on the premise that the nurses would use the afternoon time for community outreach services. It is well known that outreach services are not provided as such it likely that the afternoon hours are underutilised. Expanding the service time to 4.30 pm coupled with use of appointments may reduce crowding and also provide enough time for nurse patient interactions. Provision of outreach services would also reduce the congestion at the health centre. The limitations in time of service delivery may also be a barrier to effectively implement male involvement in maternal health care.

This study observes that the campaigns towards reduction in maternal mortality have a connotation of punishment for further incidence of maternal deaths. This has been observed to inflict fear to both the nursing staff and communities. Nurses from Kande reported that they did more referrals mainly due to fear of having life threatening complication. This may imply that the nurses were afraid of being responsible for maternal death. The communities also said that the TBAs will be charged for murder if they are found to be responsible for maternal death. The government stance on reinforcing punishment for incidence of maternal death preserves patients' safety, is justifiable in view of the principle of justice and fairness (106) to those affected. However, discretion must be used in reprimanding nurses for maternal complications or deaths since not all incidence of maternal death are as a result of absolute negligency. Nurse have an ethical duty to attend to women with complications. Breach of that duty that occur when responding to emergency may be protracted by the nature of the emergency condition (106). And maternal death may also be caused by the actual obstetric complication (106). Perceptions of fear may likely inhibit reporting of authentic circumstances linked to incidence of maternal complications or deaths. Thus, medical personnel are reluctant to admit error, for fear of the consequencies (107). Reliable information about the rates and trends in maternal mortality is essential for resource mobilisation and assessment of progress towards millenium development goals (108). Besides, successful quality improvements relies on a system that learn from each others mistakes, to reduce the likelihood that such errors will continue to occur (106;107). Thus, the spirit of reporting error need to be reinforced. The most effective way to promote reporting

medical errors in practice as identified by a large number of informants is to move away from a "culture of blame". Besides medical audits should be done objectively to apply justice to the victims of preventable deaths and exclude those whose harm was not due to negligency.

Similary, other than using threats on the TBA for continuing providing MHC services, the women and their families may be impowered to make independent decisions as to where to seek care. If women are satisfied with quality of services at the HCs, they could opt to use HCs for MHC services and the TBAs would naturally run out of business. The other way may be to identify TBA incentives for making the referrals.

This study also identified that, service delivery was not effective enough for risks identification. Basic information for risk identification was not available and reliable. Blood pressure measuring machines were out of order for some time and the weighing scale had never been calibrated before. Routine assessments provided to the women lacked consistency, they were not routinely done on each antenatal visit. This kind of data, if reviewed, would not give the trends that would predict some risk factors. Besides, provision of health education was not systematically planned and there were no schedules with variety of health talk topics. As such it is unlikely that the women were given all the necessary information related to danger signs. Most of the women were also not assessed properly during immediate and follow-up posnatal period. Although from literature, it is yet not clear what should be the right packaging for postnatal care (22). The postnatal care which these women received was not substantive enough. For these women postnatal care was merely showing the child to the nurse after one week. They said in situation where both the mother and the baby were fine, postnatal care would not be necessary. These thoughts would agree with other authors who argue that immediate postnatal care is enough for risk reduction (3). However in Malawi women are discharged within 12 hours after delivery. Thus, they really need postnatal care.

Both the health facilities had lower number of nurses than the proposed staff establishment. The proposed number of staff for both the facilities could meet the minimum standards for staffing requirement for developing countries (16;109). However the vacancies at these facililities have been outstanding for years. In as much as shortage of staff is widely identified as the key factors for failure to implement quality services (3;27;89;110), this study identified that provision of

better services would still be possible. The available capacity was not used to the maximum as the staff provided care with laxity. Irregularities were observed mainly in service delivery; staff reporting late for duties, services usually starting late (from 9.am), no use of duty rosters, absentism from duty and restricted service time (open only morning hours and also not all service were delivered daily mainly at Kande health centre). Such practices are reported to be as a result of poor motivation among staff, inadequate supportive supervision and weak mangement practices (28;111). It is evident that if these health centres were operating within the regulated working hours delivery of quality maternal health care services would be realised. There is a serious need for strengthening supportive supervision and human resource management systems.

5.3.2 PERCEPTIONS OF QUALITY OF CARE

This study found that quality of care was perceived to be poor at both health facilities. There was strong agreement between the responses from women and the key informants that the quality of care was poor. The main areas of dissatisfaction were with elements related to nurse patient relationship; components of communication and responsiveness of the nurses. This is not a new development because perception of poor quality of care by consumers in Malawi has been an outstanding problem (3;31;42;101). Users satisfaction with care has increasingly been recognised as an important outcome of care. It is considered as a means of secondary prevention of maternal mortality since satisfied women may likely utilise the services optimally (74;84). Furthermore, user satisfaction is very crucial in measuring and improving quality, with the expectation that such care would promote service utilisation and this may lead to better pregnancy outcomes (112;113). Thus poor quality of care as perceived by the women in this study should be considered as a threat to the promotion of utilisation of skilled attendance. Dissatisfaction with care by the community can diminish their level of participation and utilisation of care (100;114). Communities at Kande were more dissatisfied with care than those from Bolero. Consequently Kande registered more home deliveries and the community leaders were less supportive in conducting community mobilisation. At both the communities there were no self help facilities for transporting women to the health facilities during emergencies.

While women and their community complain of poor services the nurses also complained of clients' poor attitudes. They felt their clients did not appreciate their efforts to provide good care amids of multiple roles they played at the health centre.This study identified that nurses had

multiple responsibilities. Inadequate explanation to the women about their multiple roles may be identified as one factor that cause misunderstandings with their clients. It is also likely that there was disagreement between the two parties on the standards and expectation of care. Poor perception of care may also be associated with lack of integration of cultural values to nursing practice (68;72;115;116); in how the women are addressed, and how their cultural beliefs are perceived by health care staff. It is therefore, important for health workers to be culturally competent. This should be reflected through their awareness and integration of community health related beliefs and cultural value in health care delivery. It is also important to establish agreed level or standard of maternal care with the users; these standards must be based on women needs and must be agreed upon by them and their communities (27;70;73).

5.5 LIMITATIONS

The main source of data collection was self-report of respondents. The validity of such responses would be uncertain. Also recall and social desirability bias would further compound on the uncertainity of validity of the findings (85). To minimise these effects, triangulation methods were used, women were asked of their recent experiences and also health record card were used to validate the responses.

The study relied on cross-sectional data with the attendant potential selectivity and endogeneity bias (63). There is a possibility that the relationships found in the study are due to the unmeasured community and state level varaibles that are associated with both the dependent and indepenent variables. Maternal health care seeking behaviour of the women not having same access might be different. Though data was collected at household level, it did not capture what was occuring at community levels. Common issues would be to assess if the remote area was accessible to public transport, what other means of transport were available other than walking. This study measured distance in terms of time women take to walk to the facility, however some used bicycles, public transport and walking paces might also differ. These differences may also influence service utilisation differently. However some inferences made based on other effects of individual and household variables were still valid.

Data collection was partly done by research assistants. A certatin degree of interview variation is therefore possible. To minimise this effect, the research assistants were trained on the research processes in a standard procedure, and were also supervised in the course of data collection.

While common findings in this study may agree with findings of other studies, we do not sythesise these results into general conclusion because of two reasons. First, contextual issues are different at country or distict level. It was also observed that skilled attendance approach is operationalised in different ways aiming at capitalising the role of skilled attendance in the reduction in maternal mortality. For this study, its theoratical framework was adapted to understand whether skilled attendance was really available for the women. As such, some measurements done in the other studies on evaluation of skilled attendance were not included like; assessing quality of care at EMOC facilities and the actual measuring of nurses competencies. This makes results very hard to compare. However these findings may represent the situation on operationalising skilled attendance approach at health centre level only in the context of Malawi and other low income countries.

6. CONCLUSIONS AND RECOMMENDATIONS

This study acknowledges that, womens access to quality care is fundamental to attaining reduction in maternal mortality and morbidity. It further agrees with the notion that, successful implementation of skilled attendance is womens' legitimate demand, clinical common sense and also cost effective intervention (24).

This study identifies that though positive trends were observed in service utilisation, the current utilisation patterns of maternal health care services in the study areas are still below the targets. Most women did not make the recommended number of antenatal care and reported at the labour ward in progressed labour. Effective community mobilisation is identified as a possible solution. Designing of effective programs should base on the identified determinants for low utilisation of maternal health care in the study areas.

Some positive achievements in the implementation of the Malawian strategy of skilled attendance were observed; availability of basic infrastructure, resources and good referral systems at both health facilities, thus the basic health centre and the BemOC health centre. However marked variation were observed in service provision that were linked with nurses clinical skills and competences. Implementation of skilled attendance at Bolero health centre showed some successes worthy emulating lessons from; nurses' higher levels of competence, in how they maximised service availability and in their implementation of community mobilisations. This may mean that it could be possible to achieve provision of skilled attendance to rural communities in Malawi with use of available resources.

Some studies have indicated that the womens' dissatisfaction with care and their perception of care as not effective in identifying risk factors, is one of the factors that could lead to low utilisation of care (31;33;100). Poor perception of quality of care by the users may be considered as a threat to utilisation of skilled attendance for MHC services. Users complaints of poor services in Malawi are well documented. However no tangible solutions have been achieved.

Imbalances were observed between demand and supply components of skilled attendance approach. It is evident that less focus was put to improve health centres' capacity, mainly administration and management of the services, as observed by limited service time, shortage of staff and other irregularities with staff discipline. This picture defeat the purpose of motivating

the women to utilise health facilities and not the traditional birth attendants. It is important to prioritise quality over coverage. Good management systems could ensure maximisation of the current capacity to deliver better health care services. Koblinsky asserts that empowering individual providers, with both clinical competence and management capacity are fundamental for proper coordination and organisation of the services (3).

There is still need for information on how Skilled attence can really be made available to Malawian rural women. This study proposes further studies in these areas;

1. More understanding on formal and informal autonomy levels of women in rural Malawi.
2. Operational study on the proposed strategies for increasing access to care: use of appointment, service delivery throughout the day, effective social mobilisation strategies and effective administrative actions applicable to rural health care staff (delegation, competence enhancement etc).
3. An extensive evaluation of skilled attendance approach; to objectively identify strengths and weaknesses
4. More understanding on the causes of maternal and neonatal deaths: more information to be collected from the affected (families) to supplement the facility based audits.
5. Intervention research to improve nurses' skills and consequently quality of care.

6.1 RECOMMENDATIONS

Women should be utilising quality care to realise the intended effects on the outcome of care.

- Health facilities should be implementing comprehensive service delivery approach and that the services time should be expanded to the whole working hours.
- Malawi need to explore on suitable strategies to complement the current shortage of staff.
    i. Formal operationalising of service time from 7.30 am to 4.00 pm
    ii. Use of appointment date for antental care, family planning, postnatal care services, have manageable number of women per day.
    iii. Effective integration of vertical program, these services to be offered during week days that are not busy.

The current mobilisation interventions should target use of maternal health care as a whole entity.

- Communities need to be informed on the benefits of all care components as a prerequisite for good pregnancy outcomes.

This study identifies lack of autonomy as a key determinant for low utilisation of maternal care.

- Promotion of girl education is very important
- Integration of activities that reduce womens' levels of poverty, like microfinance projects.

Users satisfaction with care has increasingly been recognised as an important outcome of care. It is considered as a means of secondary prevention of maternal mortality since satisfied women may likely utilise the services optimally

- Quality challenges observed in this study require immediate attention

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APPENDIX 1: WOMENS QUESTIONAIRE ENGLISH

Identification

Health Centre……..Name of village……

Cluster Number…….. Respondent Number……..

Interviewer: Signature:

SECTION 1: GENERAL HEALTH ASSESSMENT

General health Assessment			
1	Overall, how do you describe your physical health as of now	Very good' Good Poor Very poor Record the common symptoms	1 2 3 4 5

SECTION 2: SOCIO-ECONOMIC & DEMOGRAPHIC DATA

HOUSEHOLD COMPOSITION: Now I will ask you some questions about your household

	QUESTIONS AND FILTERS	CATEGORIES	CODE
2	What is your family size?	Indicate number	
3	What is your relationship with them	Nuclea family Extended family Live with parents	1 2 3
4	How old are you		
5	What is your marital status	Single Married Widow divorced	1 2 3 4

6	What is your occupation	House wife Business Farmer working	1 2 3 4
7	If married, what is your husbands occupation	Farmer Fisherman Business (include commercial farming and fishing) Piece work Working Still in school Nothing	1 2 3 4 5 6 7
8	What is your education level	Primary Junior secondary Senior secondary College Adult literacy Never attended	1 2 3 4 5 6
9	What is the main source of drinking water for members of your household?	Piped water Water from open well Water from covered well or Borehole Surface water Other _____	1 2 3 4 5 6
10	How long does it take you to go there, get water, and come back?	Les than 30 minutes Within one hours within two hours	1 2 3

11	What kind of facilities does your household have? Toilet . . . . ……y/n Bath . . . . . y/n Kitchen. . . . . ……y/n Dish rack ……..y/n	Healthy home Not healthy home For no indicate what they do not have	1=yes 2=no 99
12	Do you have the following property? Car, Refrigerator, TV, Motorcycle= rich Radio Mattress (no.)_____ , Blankets, Bicycle, Ox-cart , Boats = Average no property= poor	Poor Average Rich	1 2 3
13	What is the condition of your house?	Permanent Semi temporary Temporary	1 2 3

SECTION 2: SERVICE UTILISATION ***Now I would like to ask about all the births you have had during your life. Fill in pregnancy history (Use the card if available to compare information below!)***

Pregnancy Care			
14	Distance from clinic, how long does it take, one trip (***to be converted to KM; 0-2, 3-5, 6-10 >10***)	Less than 30 minutes Within one hour Within two hours More than two hours	1 2 3 4
15	Do you have a card or booklet where your where information about pregnancies are written down	Yes No	1 2
16	Check completeness, ***complete if all the data filled properly: Obstetric history, Antenatal consultation records (current pregnancy), Risk factors documentation***	Antenatal Obstetric Delivery ***If No indicate the incomplete section***	1 2 3
17	Comments	Card for each pregnancy More than one card for same pregnancy if yes (Why write reason)	1 2

				One card for each pregnancy	3
18	How old were you when you first delivered			Below 18 18-35 Above 35	1 2 3
19	What is your parity			Below 4 5 and above	1 2
20	What were your pregnancies outcomes? ***Use the card if available to compare information!***			LB SA TP EP SB	1 2 3 4 5
Codes	LB 1	SA 2	TP 3	EP 4	SB 5
21	During the last pregnancy, did you attend ANC			Yes No	1 2
22	How many months pregnant were you when you first received antenatal care for that pregnancy?			Within first three months Within second three moths Within third three months Forgotten	1 2 3 88
23	Why did you start ANC at this time? Explain.....				
24	During this pregnancy, were any of the following done at least once? Were you weighed? Was your height measured? Was your blood pressure measured? Did you give a urine sample? Did you give a blood sample?			If all the tests done= very good If all done except height and urine = good If less than 4 tests done = Poor	1 2 3

	Was the foetal heartbeat checked? Did someone examine your eyes?		
25	Were you told about the signs of complications? What are they? *Explain*	Yes No	1 2
26	During this pregnancy, did you experience:	High blood pressure? Swelling of your feet? Anaemia? Bleeding?	1 2 3 4
27	During this pregnancy, did you take any drugs to prevent you from getting malaria? *Not considered here are instances where you took the drug because you had malaria.*	Yes No Don't know	1 2 88
28	During this pregnancy, were you given any iron tablets? Show the tablet	Yes No Don't know	1 2 88
29	During this pregnancy, were you given an injection in the arm to prevent the baby from getting tetanus, that is, convulsions after birth?	Yes No Don't know	1 2 88
30	If yes to (42) how many times did you get this injection?	Completed Not yet completed Get vaccinated during each pregnancy	1 2 3

Delivery an Postnatal care			
31	Where did you give birth to _____Name	TBA Your home Hospital Health centre On the way	1 2 3 4 5

32	Who assisted you with delivery of _____Name	Doctor/clinical officer Nurse/midwife Patient attendant Traditional birth attendant No one	1 2 3 4 5
33	How was ___delivered	SVD C/C Assisted (Specify Vacuum extraction	1 2 3 4
34	How much did name weigh ***Weight in grams,***	Very large Large Average Smaller than average Very small Recall weight Documented weight Don't Know	1 2 3 4 5 6 7 88
35	After this birth, did you experience a problem such as:	Heavy bleeding? High blood pressure? Stroke/convulsions? Infection/fever? Leakage of stool or urine from your Vagina Postpartum depression	1 2 3 4 5 6
36	After (name) was born did your assistant check you before transferred to postnatal ward	Yes No	1 2
37	Were you also checked before discharge	Yes No	1 2
38	If child was born at home, did you go to the clinic?	Yes	1

		No	2
39	If yes to Q 38, After how long	Same day days After a week Never	1 2 3 4
40	Were you told to come for routine Postnatal care	Yes No	1 2
41	How many days or weeks after delivery did the routine check take place?	Within one week Six weeks after del Did not go	1 2 3
42	Did they check the following: Locia, uterus involution, infection, lactation (if this done = Good); (If less tests done = poor)	Good Poor	1 2
43	Did you ever breastfeed (NAME)?	Yes No	1 2
44	How did you breast fed him	Exclusive less than 6 months Exclusive up to six months	1 2
45	Weaning time	Before one year After one year Two years	1 2 3

Contraception			
46	What methods of family planning do you know?	Female sterilization Male sterilization Pill IUD Injectables In plants Condom	1 2 3 4 5 6 7

		Natural Emergency contraceptive Never heard	8 9 10
47	Which ones have you ever used?	Female sterilization Male sterilization Pill IUD Injectables In plants Condom Natural Emergency contraceptive Never used	1 2 3 4 5 6 7 8 9 10
48	Are you pregnant?	Yes No	1 2
49	If yes to Q48, did you plan this pregnancy	Yes No	1 2
50	If not planned how long were you intending to wait	Before two years After two years	1 2
51	If not pregnant, are you on any FP method	Method ***(use the codes above)***	
52	Were you ever told by a health or family planning worker about side effects or problems you might have with the method?	Yes No	1 2
53	Have you experienced any side effects	Yes No (Specify the problem)	1 2

HIV testing Information

54	Do you know your HIV status?	Yes No	1 2
55	Were you tested for the AIDS virus as part of your care? If yes during what period of care	Yes No	1 2
56	If yes, during what care	Antenatal Labour Postnatal	1 2 3
57	Did you voluntarily undergo the HIV test, or were you required to have the test?	Voluntary Required Not applicable	1 2 3
58	I would like to know the results, But did you get the results of the test? If yes, what is your status	HIV negative HIV positive Don't know	1 2 3
59	If HIV positive, What care are you on	CPT ART Nothing	1 2 3

SECTION 3: PERCEPTION OF CARE

69 Perception of services			
1	During the last pregnancy in your interaction with the clinic, were you happy with the care you got, did they meet your needs	Always Sometimes Never	1 2 3
2	Do you agree that the nurses are accessible to you when you need them?	Always Sometimes Never	1 2 3
3	During that pregnancy, how often did nurses treat you with courtesy and respect	Always Sometimes Never	1 2 3
4	How often did nurses listen carefully to you?	Always	1

		Sometimes Never	2 3
5	How often did nurses explain things in a way you could understand	Always Sometimes Never	1 2 3
6	Before giving you any new medicine, how often did hospital staff tell you what the medicine was for?	Always Sometimes Never	1 2 3
7	Before giving you any new medicine, how often did hospital staff describe possible side effects in a way you could understand?	Always Sometimes Never	1 2 3
8	How often did the hospital staff do everything they could to help you with your need?	Always Sometimes Never	1 2 3
9	How often was the area around your clean	Always Sometimes Never	1 2 3
10	Would you recommend this hospital to your friends and family?	Always Sometimes Never	1 2 3
11	How comfortable are you in discussing your health concerns with the clinical staff?	Always Sometimes Never	1 2 3
12	Using 0 to 10 where 0 is worst possible and 10 is best possible, how would you rate this hospital?	0-4 5-7 7-10	1 2 3

APPENDIX 2: OBSERVATION CHECKLIST

Checklist Item	Comments
1) Time the women spend in the clinic (for ANC, and postnatal clinic)	
2) Observe the flow of clients in the clinic, coordination of care	
3) Availability of basic resources for maternal care in the clinic: Medicine; Test Kits, for HIV, syphilis, Urine tests ; Functional equipment, weighing scale, BP, thermometers	
4) How often are the ANC/ PN clinics	
5) Availability of health personnel in during these clinics Nurses, MA/CO, PA	
6) Existence of referral system: Wires message, phone (credit,) Access to ambulance, Coordination with TBA	
7) Record Keeping; Registers, cards, labour charts, Hand over reports	
8) Confidentiality for clients, visual and audio	
9) Cleanliness, Waiting area, treatment room, toilets	
10) Comments from the Nurse on the patterns of utlisation of MHC services	

APPENDIX 3: KEY INFORMANT INTERVIEW GUIDE ENGLISH

Checklist Item	**Comments**
1) Where do the women in this community attend for services like ANC, Delivery, PN, FP, HIV testing? Categories each service under TBA Clinic Hospital	
2) What would you comment on the utilisation of these services (ANC, Delivery, PN, FP, HIV testing) by the women in this community? Probe if perceived as optimal or suboptimal	
Why is it so?	
3) What hinders or facilitates utilization of MHC services from the health facility? (if applicable)	
5) How common are these conditions in this community? Pregnancy emergencies (home deliveries, obstructed labour, deliveries on the way) Maternal death Infant death Neonatal death	
6) What kind of community support do you have for facilitating the obstetric emergencies?	